

ESTUDO DE ALTERNATIVAS E PROJETOS PARA MINIMIZAÇÃO DO EFEITO DAS CHEIAS NA BACIA DO RIO DOS SINOS

Contrato nº 003/2015



ETAPA - ESTUDOS BÁSICOS

PRODUTO Nº 8 - RELATÓRIO AEROFOTOGRAMÉTRICO



Contrato n.º 003/2015		ESTUDO DE ALTERNATIVAS E PROJETOS PARA MINIMIZAÇÃO DO EFEITO DAS CHEIAS NA BACIA DO RIO DOS SINOS			
DOCUMENTO N.º: RT-EB-11-2016-TPO-001-01		PRODUTO 8 RELATÓRIO DA AEROFOTOGRAMETRIA			
Revisão	Data	Descrição	Elaborado p/	Aprovado p/	Status
R00	15/11/2016	Emissão inicial	Consórcio Sinos	METROPLAN	Para aprovação
R01	27/12/2016	Atendendo PARECER da METROPLAN	Consórcio Sinos	METROPLAN	Para aprovação
Elaboração		Cliente		Responsáveis Técnico	
CONSÓRCIO SINOS		METROPLAN		Engº ORGEL CARVALHO FILHO CREA RS 087284 Engº LUCIANO BEZERRA CREA RS 055454 Engº WELLINGTON COIMBRA LOU CREA RJ 22414-D	

EQUIPE TÉCNICA

Equipe Principal:

- Eng. Orgel de Oliveira Carvalho Filho;
- Eng. Ricardo de Magalhães Santiago;
- Eng. Luciano Bezerra da Silva;
- Eng. José Carlos Leite Diehl;
- Eng. Wellington Coimbra Lou;
- Eng. José Augusto Jordão Castro;
- Arq. Clarice Debiagi;
- Soc. Roseli Kepeler

Equipe Complementar:

- Eng. Peterson Martinski;
- Eng. Thiago Araldi;
- Eng. Luiz Costa Borges;
- Eng. Carlos Wagner da Motta Meirelles;

SUMÁRIO

1	APRESENTAÇÃO	5
2	INTRODUÇÃO	7
3	AEROFOTOGRAMETRIA	8
3.1	Planejamento geral	8
3.2	Recobrimento Aerofotogramétrico	8
3.2.1	Retificação do Termo de Referência	8
3.2.2	Coleta de Informações	9
3.2.3	Planejamento de Voo	9
3.2.4	Aquisição das Imagens Aéreas	11
3.2.5	Etapa pós voo	13
3.3	Apoio de Campo	13
3.3.1	Objetivo da etapa	14
3.3.2	Planejamento	14
3.3.3	Controle fotogramétrico	15
3.3.4	Operações de Campo	15
3.3.5	Controle de Ondulação do Geóide	17
3.3.6	Datum	17
3.4	Aerotriangulação	17
3.5	Restituição Aerofotogramétrica Planialtimétrica Digital	18
3.6	Geração de Ortofotos Digitais	19
3.6.1	Ortorretificação das Fotografias	19
3.6.2	Ajuste Radiométrico das Imagens	20
3.6.3	Mosaicagem e Georreferenciamento das Imagens	21
3.7	Anexos	21

ÍNDICE DE FIGURAS

Figura 1 - Plano de voo	10
Figura 2 - Aeronave Sêneca III (EMBRAER) - Prefixo PT-VBA utilizada no projeto	12
Figura 3 - Sistema Phase One, com a IMU do sistema de navegação	12
Figura 4 - Ondulação geoidal para um Ponto Considerado.....	17
Figura 5 - Representação de uma imagem digital	20

ÍNDICE DE QUADROS

Quadro 1 - Dados do Contratante	5
Quadro 2 - Dados do Consórcio.....	6
Quadro 3 - Dados do Contrato	6
Quadro 4 - Produtos previstos no contrato e status de execução	7

ÍNDICE DE ANEXOS

ANEXO 1 - AUTORIZAÇÃO DO MINISTÉRIO DA DEFESA	22
ANEXO 2 - CERTIFICADO DE CALIBRAÇÃO DA CÂMERA	25
ANEXO 3 - DADOS TÉCNICOS DO RECOBRIMENTO AEROFOTOGRAFAMÉTRICO	27
ANEXO 4 - COORDENADAS DO MARCO BASE.....	77
ANEXO 5 - LOCALIZAÇÃO DO MARCOS – BASE 02, MR 03 e MR 04	80
ANEXO 6 - CROQUI DO APOIO SUPLEMENTAR	84
ANEXO 7 - COORDENADAS DOS PONTOS DO APOIO SUPLEMENTAR	86
ANEXO 8 - DADOS DO PROCESSAMENTO GPS.....	91
ANEXO 9 - MONOGRAFIA DOS MARCOS	121
ANEXO 10 - DADOS DA AEROTRIANGULAÇÃO	125
ANEXO 11 - ÁREA DA BACIA DO RIO DOS SINOS	355
ANEXO 12 - MOSAICO.....	357
ANEXO 13 - ORTOFOTOS.....	377
ANEXO 14 - RESTITUIÇÃO AEROFOTOGRAFAMÉTRICA.....	379
ANEXO 15 - FOTO ÍNDICE	381
ANEXO 16 - PLANILHAS DE RESOLUÇÃO	385

1 APRESENTAÇÃO

Este documento é parte integrante dos “Estudo de Alternativas e Projetos para Minimização do Efeito das Cheias na Bacia do Rio dos Sinos”, e trata do PRODUTO 08 – RELATÓRIO DA AEROFOTOGRAMETRIA, conforme descrito no Edital CELIC-RS nº 008/14 na modalidade de Regime de Contratação Diferenciada (RDC).

O contrato supracitado é financiado através do Orçamento Geral da União, operacionalizado pelo Ministério das Cidades, no âmbito do Plano de Aceleração do Crescimento-2 (PAC 2). O contrato está inserido no Plano Nacional de Gestão de Riscos e Resposta a Desastres Naturais (PNGR), atendendo aos municípios da bacia hidrográfica do Rio dos Sinos, na Região Metropolitana de Porto Alegre, no Estado do Rio Grande do Sul.

Quadro 1 - Dados do Contratante

DADOS DA CONTRATANTE	
Nome	Fundação Estadual de Planejamento Metropolitano e Regional - METROPLAN (citada daqui em diante como FISCALIZAÇÃO)
Endereço	Rua 24 de Outubro 388 - 4o andar - Bairro Moinhos de Vento, Porto Alegre - RS
Responsável pela instituição	
Nome	Pedro Bisch Neto
Cargo	Diretor-Superintendente
Fiscal do contrato	
Nome	Eng. ^a Paula Branco Pinto
Telefone	(51) 3288-6000
E-mail	paula-pinto@metroplan.rs.gov.br

(Fonte: Consórcio Metroplan Bacia do Rio dos Sinos)

Quadro 2 - Dados do Consórcio

DADOS DO CONSÓRCIO	
Nome Fantasia	Consórcio Metroplan Bacia Rio dos Sinos
EMPRESAS COMPONENTES	
Razão social	Cohidro Consultoria, Estudos e Projetos Ltda.
Endereço	Rua 96, 585, loja comercial 7, Saquarema/RJ,
Responsável	Eng.º Wellington Coimbra Lou
Telefone	(21) 2288-5462
E-mail	cohidro@cohidro.com.br

Razão social	Encop Engenharia Ltda.
Endereço	Av. Coronel Aparício Borges, nº 965 - salas 201, 202 e 203, Porto Alegre/RS
Responsável	Eng.º Luciano Bezerra
	Eng.º Thiago Araldi
Telefone	(51) 3028 4799
E-mail	luciano@encop.com
	thiago@encop.com

Razão social	M.J Engenharia Ltda.
Endereço	Rua Dr. Vale, 60, sala 501, Porto Alegre/RS
Responsável	Eng.º Orgel Carvalho Filho
	Eng.º Ricardo Santiago
Telefone	(51) 3013 5793
E-mail	orgel.filho@mjenharia.com
	ricardo.santiago@mjenharia.com

(Fonte: Consórcio Metroplan Bacia do Rio dos Sinos)

Quadro 3 - Dados do Contrato

DADOS DO CONTRATO	
Termo de Compromisso do Estado do RS com União	0402.532-34/2012-RS
Editais CELIC	RDC 008/14
Número do contrato com a METROPLAN	003/2015
Objeto	Elaboração de estudos e projetos necessários para a gestão de inundações na bacia hidrográfica do Rio dos Sinos
Ordem de início	16 de junho de 2015
Prazo	30 meses (contrato inicial mais primeiro termo aditivo)

(Fonte: Consórcio Metroplan Bacia do Rio dos Sinos)

2 INTRODUÇÃO

O presente relatório descreve o conteúdo referente ao "Produto 8 – Relatório da Aerofotogrametria", conforme solicitado no Termo de Referência:

Os produtos de aerofotogrametria fornecerão todos os elementos de planialtimetria e as imagens ortorretificadas para apropriação no projeto. Além das imagens, a informação cadastral e de altimetria servirá as etapas posteriores de anteprojeto, projeto básico e elaboração do plano diretor de drenagem, entre outros, bem como permitirá uma homogeneidade na base de informação geográfica entre os municípios da bacia para fins de planejamento urbano e territorial metropolitano.

Este documento oferece subsídios para a elaboração dos demais produtos do presente projeto, além de poder ser disponibilizado publicamente para reuso por interessados nos temas abrangidos. O Quadro 4 apresenta a relação de produtos previstos no presente projeto e a situação em que se encontrava o desenvolvimento de cada produto no momento do fechamento da presente edição.

Quadro 4 - Produtos previstos no contrato e status de execução

Número	Denominação do Produto	Status de Execução
1	Plano de Trabalho Consolidado	Executado
2	Consulta Pública - Relatório do Evento 1 - Plano de Trabalho	Executado
3	Consulta Pública - Relatório do Evento 2 - Diagnóstico	Não iniciado
4	Consulta Pública - Relatório do Evento 3 - Plano de Ação	Não iniciado
5	Base de Dados	Em revisão
6	Diagnóstico	Em revisão
7	Levantamento Topobatimétrico	Em execução
8	Levantamento Aerofotogramétrico	
9	Cadastro de Redes	Não iniciado
10	Relatório dos Estudos Hidrológicos	Em execução
11	Relatório Simulações Hidráulicas e Mapas de Inundações	Em execução
12	Projetos dos Cenários de Intervenção	Não iniciado
13	Análise de Viabilidade das Alternativas	Não iniciado
14	Consolidação do Conjunto de Intervenções	Não iniciado
15	Plano de capacitação e adequação dos serviço de gestão de águas pluviais	Não iniciado
16	Plano de Ação	Não iniciado
17	Resumo Executivo	Não iniciado
18	Relatório Final	Não iniciado

(Fonte: Consórcio Metroplan Bacia do Rio dos Sinos)

O relatório descreve as operações desenvolvidas, os produtos resultantes, bem como a metodologia e o instrumental empregado nos serviços de Recobrimento Aerofotogramétrico de diversas áreas urbanas e rurais, pertencentes a Bacia Hidrográfica do Rio dos Sinos e localizadas nos municípios de Riozinho, Caraá, Rolante, Taquara, Parobé, Igrejinha, Três Coroas, Nova Hartz, Araricá, Sapiranga, Campo Bom, Novo Hamburgo, Estância Velha, Portão, São Leopoldo, Sapucaia do Sul, Esteio, Canoas e Nova Santa Rita, localizadas no estado do Rio Grande do Sul.

3 AEROFOTOGRAMETRIA

3.1 Planejamento geral

As atividades executadas foram divididas em 5 etapas, assim definidas:

- Recobrimento Aerofotogramétrico, conforme Relatórios de Andamento RA 04;
- Aerotriangulação, conforme Relatório de Andamento RA 05 e RA 06;
- Apoio de campo, conforme Relatório de Andamento RA 05 e RA 06;
- Geração de Ortofotos, conforme Relatórios de Andamento RA 06 e RA 07;
- Restituição Aerofotogramétrica, parte deste documento RA 06 e RA 07;

3.2 Recobrimento Aerofotogramétrico

3.2.1 Retificação do Termo de Referência

Conforme reunião realizada no dia 9 de março de 2016, com representantes da METROPLAN, ficou acordado a retificação do termo de referência em relação a resolução do recobrimento aerofotogramétrico.

A especificação de captura de imagens na escala 1:10.000 e geração de produtos na escala 1:2.000 é adequada às normas de aerofotogrametria, que permitem o uso de escala com proporção de 5 vezes nessas fases. A especificação da escala 1:2.000 para a geração de produtos finais é compatível com a grande maioria dos levantamentos aerofotogramétricos contratados por prefeituras para serem executados em áreas urbanas.

A configuração do tamanho do pixel em uma câmera digital é realizada conforme a altura de voo buscando-se uma equivalência com os parâmetros de câmeras analógicas.

Para uma altura de voo compatível com as escalas 1:10.000/1:8.000, o valor de resolução de uma câmera analógica com distância focal aproximada de 152 mm é de 20 a 25 cm por pixel.

No presente projeto, configurou-se até uma resolução superior, próxima aos 20 cm por pixel. Portanto a resolução apresentada no voo com escala 1:8.000 com GSD 20 cm é perfeitamente compatível para a obtenção de Restituição aerofotogramétrica na escala 1:2000 - PEC "A" - com curvas de nível a cada metro.

Desta forma, atendendo este quesito a cobertura aerofotogramétrica, digital e colorida, foi feita com resolução espacial de 20 centímetros por pixel. No ANEXO 16, estão mostradas as planilhas de cálculo de resolução.

As atividades realizadas nesta fase da cobertura aérea foram:

- Coleta de informações;
- Planejamento de voo;
- Aquisição das imagens aéreas;
- Etapa pós voo: controle de qualidade.

3.2.2 Coleta de Informações

Nesta fase foram coletadas todas as informações preliminares necessárias para o planejamento de voo utilizando como base o Google Earth e dentro de um polígono definido pelo TR e consolidado pela METROPLAN.

3.2.3 Planejamento de Voo

Para garantir a perfeita cobertura aerofotogramétrica foi feito um planejamento de voo adequado para o mapeamento das áreas.

No planejamento da cobertura aerofotogramétrica foi considerada uma série de aspectos técnicos dentro da área a fotografar; entre eles:

- Altitude média e variação do terreno;
- Definição das faixas de sobreposição das imagens.
- Condições naturais da região (relevo da área);

Para o início da cobertura aerofotogramétrica tornou-se necessário uma autorização junto ao Ministério da Defesa e a elaboração de planos de voos gráficos e analíticos para o recobrimento da área de interesse.

- Autorização de Voo

Após a realização do levantamento das informações da área a ser fotografada foi realizado o pedido de autorização de voo junto ao Ministério da Defesa.

Esta autorização tem como objetivo controlar a cobertura aerofotogramétrica dentro do território brasileiro, visando à segurança aérea e o controle de fluxo de aeronaves no espaço aéreo brasileiro.

Para este projeto, foi utilizado a autorização nº167/2015MD e AVOMD (Autorização de Voo do Ministério da Defesa), sob número 203/2015, com validade para o período de 09/10/2015 a 30/03/16.

O ANEXO 1 apresenta uma cópia desta autorização.

- Planos de Voo

Os planos de voo foram gerados em software específico e após serem analisados, foram encaminhados à equipe de campo para a execução da atividade.

Foram gerados dois planos de voo:

- gráfico;
- analítico.

O plano de voo gráfico apresenta as faixas de voo e o posicionamento das fotos que serão adquiridas. Isto possibilita verificar se a área será devidamente recoberta, além de orientar a equipe de campo durante a aquisição dos dados com a devida análise do posicionamento da aeronave, visando o atendimento das faixas de voo e o controle de qualidade em tempo real da atividade.

O sistema Phase One possui software de navegação que possibilita ao operador o controle total da tarefa e a possibilidade de tomada de decisões, caso o voo não esteja sendo feito conforme planejado.

As áreas sobrevoadas estão localizadas nos municípios de Riozinho, Caraá, Rolante, Taquara, Parobé, Igrejinha, Três Coroas, Nova Hartz, Araricá, Sapiranga, Campo Bom, Novo Hamburgo, Estância Velha, Portão, São Leopoldo, Sapucaia do Sul, Esteio, Canoas e Nova Santa Rita, localizadas no estado do Rio Grande do Sul.

A Figura 1 ilustra o plano de voo gráfico elaborado para as áreas de interesse.

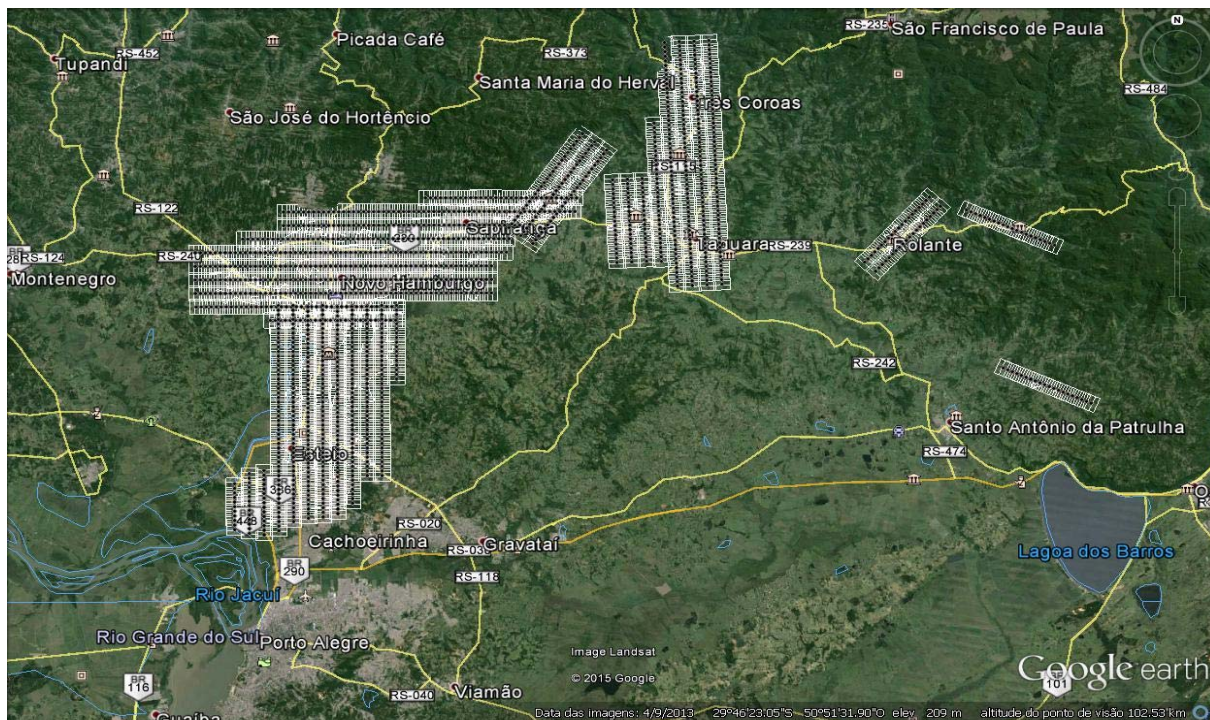


Figura 1 - Plano de voo
(Fonte: Consórcio Metroplan Bacia do Rio dos Sinos)

Além do plano de voo gráfico elaborou-se o plano de voo analítico, que contém uma descrição detalhada dos dados técnicos do voo, tais como: informações técnicas dos sensores, dados da região, bem como outras instruções tipo: altura e altitude de voo, recobrimento lateral e longitudinal, GSD, tempo de exposição (necessário para evitar o arrastamento da imagem), quantidade aproximada de imagens que serão obtidas, coordenadas geográficas de entrada e saída das faixas, coordenadas geográficas do centro perspectivo de cada fotografia aérea e características da aeronave que será utilizada.

3.2.4 Aquisição das Imagens Aéreas

A tomada das imagens obedeceu a um planejamento meticuloso. Uma série de condições foram observadas, visando assegurar a qualidade do voo e, conseqüentemente, a qualidade das imagens.

Neste sentido, fez-se necessária a consulta diária ao mapa climatológico, observações “in loco”, contato com as estações meteorológicas mais próximas do local do recobrimento e outros dispositivos que permitissem a constatação das condições climáticas.

É com este conjunto de informações que se decide pela decolagem ou não da aeronave.

A cobertura aerofotogramétrica corresponde ao imageamento do terreno através de imagens, expostas sucessivamente, ao longo de uma direção de voo. Essa sucessão foi realizada em intervalo de tempo tal forma a se obter uma superposição longitudinal entre duas fotografias de ao menos 60%; constituindo-se no final uma faixa de cobertura.

Nas faixas dispostas, paralelamente, para compor a cobertura de uma área, foi mantida uma distância entre os eixos de voo de forma que se conseguisse uma superposição lateral, seja de, no mínimo, 30% entre as faixas adjacentes.

O recobrimento de 60% tem como objetivo garantir a visão tridimensional do terreno, necessária às etapas posteriores de mapeamento, como a aerotriangulação, restituição aerofotogramétrica e geração das ortofotos.

Ocasionalmente, esta sobreposição pode variar principalmente devido às oscilações da altura de voo e da deriva da aeronave decorrente da ação do vento.

Todos os cuidados foram tomados para que os trabalhos referentes à cobertura aerofotogramétrica digital fossem executados conforme o planejamento constante no plano de voo, entre eles:

- A aeronave utilizada (Figura 2) está devidamente homologada pela Agência Nacional de Aviação Civil (ANAC) para esse fim e dotada de equipamento GPS voltado para navegação, contendo os planos de voo de todas as diretrizes de faixas e centros das imagens.

Possui teto de serviço superior ao necessário para a obtenção de imagens, sendo especialmente adaptada para acoplar o equipamento aerofotogramétrico e acomodar a tripulação.

- A direção de voo foi realizada de forma a otimizar o aerolevantamento e no sentido das pistas dos aeroportos, garantindo completa cobertura das áreas de interesse.
- Havendo interrupção na tomada das imagens em uma determinada faixa, o reinício das operações está condicionado à superposição dos três últimos pares estereoscópicos.



Figura 2 - Aeronave Sêneca III (EMBRAER) - Prefixo PT-VBA utilizada no projeto.
(Fonte: Consórcio Metroplan Bacia do Rio dos Sinos)

- O sistema de aerolevantamento utilizado no projeto possui sistema automático de disparo e sincronismo de dados, ângulo normal e capaz de registrar os menores detalhes sem distorções; resolução radiométrica de 8 a 16 bits; resolução geométrica de 80 megapixels e distância focal nominal de 50 mm.
Também possui Unidade de Medida Inercial (IMU- Inertial Measurement Unit), que registra os ângulos de posicionamento do avião (Omega, Phi e Kappa) e GPS que registra as coordenadas com alta precisão (x, y, z), na tomada de cada imagem.

A partir dos dados definidos no planejamento de voo, foi realizada a aquisição das imagens coloridas digitais, utilizando o sistema Phase One (Figura 3).



Figura 3 - Sistema Phase One, com a IMU do sistema de navegação
(Fonte: Consórcio Metroplan Bacia do Rio dos Sinos)

3.2.5 Etapa pós voo

Após a atividade de campo os dados foram recebidos pela equipe técnica em escritório.

Inicialmente, foi realizado um controle de qualidade das informações e dos dados coletados nas missões de voo, analisando-se:

- O recobrimento total da área a ser sobrevoada;
- A qualidade das imagens;
- A interação das informações (imagens, dados de navegação GPS/INS, dados laser, arquivos técnicos do voo e demais dados);
- O atendimento do plano de voo planejado, comparando os fotoíndices e as trajetórias geradas pelo sistema de navegação.

Após a análise e armazenamento dos dados verificou-se que não houve problemas com o voo realizado e procedeu-se a geração e edição final dos fotoíndices.

- Dados GPS/inercial:

Os dados de navegação e georreferenciamento direto, coletados pelo sistema GPS/inercial, foram processados em software específico do fabricante dos sensores, para o cálculo das coordenadas precisas do centro óptico e dos ângulos de rotação da câmara em cada aquisição de dados.

Estas informações precisas foram usadas tanto para a etapa posterior de triangulação das imagens como para o processamento dos dados laser.

Este processamento foi feito no modo relativo, integrando os dados de uma estação base posicionada em solo, próxima ao local da atividade, aos dados coletados em voo.

No processamento dos dados GNSS e da IMU foram utilizadas técnicas de ajuste e integração dos dados (forte ou fracamente acoplados), com suavização e exportação da trajetória da aeronave para serem utilizados em processos posteriores.

3.3 Apoio de Campo

A seguir estão descritas as operações envolvidas, a metodologia e o instrumental empregado no processo do apoio de campo, necessários para o desenvolvimento dos serviços.

Inicialmente foram obtidas as coordenadas dos pontos de apoio suplementar, para posterior aerotriangulação da área de interesse. Os pontos de apoio suplementar foram distribuídos de forma regular em quantidade e qualidade suficientes a atender às exigências mínimas dos programas de aerotriangulação a serem utilizados na próxima etapa.

O desenvolvimento dos serviços deu-se de conformidade com as especificações técnicas para sua execução.

Dados do relatório:

- Apoio básico: 03 marco (Base 02, MR 03 e MR 04);
- Identificação e levantamento de HV = 186 pontos.

3.3.1 Objetivo da etapa

O apoio terrestre básico se constitui na determinação de coordenadas planialtimétricas, no sistema UTM, de pontos necessários às operações aerofotogramétricas.

O apoio terrestre bem como a determinação altimétrica, foram realizados a partir de determinações por rastreamento de satélites do sistema NAVSTAR GPS, pelo método da determinação relativa.

3.3.2 Planejamento

Os trabalhos do apoio terrestre iniciaram-se a partir da coleta de todas as informações cartográficas disponíveis na região dos trabalhos, tais como:

- Monografias dos vértices da Rede Geodésica e de referências de nível da Rede Geodésica de 1a. Ordem do IBGE.
- Mapas rodoviários do Estado;
- Fotografias aéreas da área;
- Fotoíndice da Cobertura Aerofotogramétrica.

Com base nos mapas das redes básicas existentes e nos mapas rodoviários foram planejados os desenhos de uma rede de densificação planimétrica.

Sobre as fotografias aéreas da cobertura devidamente justapostas e montadas e com o auxílio do fotoíndice correspondente, foram escolhidas as posições aproximadas para os pontos de apoio fotogramétrico (HHVV), com base nos seguintes critérios:

- Pontos ao longo de todos os bordos e ligações de faixas;
- Facilidade de acesso aos pontos;
- Presença de detalhes do terreno nas imagens que permitissem a perfeita identificação dos pontos;
- Condições de visibilidade para ocupação dos pontos com os receptores GPS.

As zonas assim escolhidas para a localização dos pontos foram marcadas sobre as fotografias e fotoíndice e em seguida numerados sequencialmente. Em função da quantidade de pontos e da distância da rede, foi definida a necessidade de equipamentos e pessoal.

Sobre fotografias, foram escolhidos os pontos de apoio suplementar, necessários ao processamento da aerotriangulação, os quais obedeceram a seguinte distribuição e densidade:

- Foram escolhidos um total de 181 pontos, como solução suficiente aos trabalhos de orientação da aerotriangulação da cobertura aérea.

Concluído o planejamento do apoio suplementar, partiu-se para o reconhecimento e identificação em campo.

Finda esta etapa, iniciaram-se os trabalhos de medição dos pontos de apoio suplementar.

3.3.3 Controle fotogramétrico

Tendo em vista a utilização de programa baseado em leituras de modelos independentes, a execução da restituição aerofotogramétrica da cobertura aérea e a utilização de aerotriangulação para densificação do controle fotogramétrico, foi feito um planejamento da distribuição de pontos de apoio terrestre em função da forma do bloco de fotografias e extensão das faixas. Optou-se por pontos de duplo apoio (HV), distribuídos em todas as faixas.

Os pontos de apoio fotogramétrico tiveram suas coordenadas e altitudes determinadas em campo por posicionamento de satélites do sistema NAVSTAR GPS, Método Diferencial Estático, a partir da base local amarrada à Rede Nacional e as referências de nível do apoio altimétrico.

3.3.4 Operações de Campo

- Posicionamento Tridimensional GPS:

As etapas do levantamento dos pontos de apoio foram conduzidas segundo o mesmo método de posicionamento, utilizando o sistema GPS.

Foi empregado o método de posicionamento estático, no modo relativo, isto é, foram utilizados dois, rastreando simultaneamente em duas estações distintas, uma das quais, pelo menos com coordenadas já conhecidas, e a outra que se pretende determinar.

Foram utilizados dois receptores geodésicos de dupla frequência, Topcon. Os dados armazenados nas memórias dos receptores foram descarregados em computador portátil e processados diariamente.

- Apoio Básico

Para o transporte de coordenadas foi utilizado um receptor Legacy da Topcon, de dupla frequência, operando no modo estático, com pelo menos 05 satélites.

Para o cálculo das coordenadas do marco base (Base-02) foi utilizado o processo Posicionamento por Ponto Preciso (PPP), que é um serviço on-line para o pós-processamento de dados GPS (Global Positioning System). Ele permite aos usuários de GPS, obterem coordenadas de boa precisão no Sistema de Referência Geocêntrico para as Américas (SIRGAS 2000) e no International Terrestrial Reference Frame (ITRF).

No posicionamento com GPS, o termo Posicionamento por Ponto Preciso normalmente refere-se à obtenção da posição de uma estação utilizando as observáveis fase da onda portadora coletadas por receptores de duas frequências e em conjunto com os produtos do IGS (International GNSS Service).

O resultado do IBGE-PPP independe de qualquer ajustamento de rede geodésica e não está associado às realizações ou ajustamentos de rede planimétrica. O IBGE-PPP processa dados GPS que foram coletados no modo estático ou cinemático de receptores de uma ou duas frequências.

Para auxiliar na etapa do levantamento dos pontos do apoio suplementar, foram implantadas mais duas bases. As coordenadas dos marcos Base-02 e MR03 foram obtidas através do posicionamento do sistema GPS.

Foi empregado o método de posicionamento estático, no modo relativo, isto é, são utilizados dois, rastreando simultaneamente em duas estações distintas, uma das quais, pelo menos com coordenadas já conhecidas, e a outra que se pretende determinar.

Caso seja necessário novo levantamento na área da Bacia do Rio Sinos, foram implantados os marcos MR 03 e MR 04.

- **BASE02 (SIRGAS-2000)**

Município: Sapiranga-RS

Latitude: 29° 37' 56,585547" S

Longitude: 50° 59' 47,750149" W

Alt. Elip: 41,9595 m

- **MR-03 (SIRGAS-2000)**

Município: São Leopoldo - RS

Latitude: 29° 44' 11,416614" S

Longitude: 51° 09' 01,202278" W

Alt. Elip: 12,08 m

- **MR-04 (SIRGAS-2000)**

Município: Taquara - RS

Latitude: 29° 39' 14,117022" S

Longitude: 50° 46' 37,91513" W

Alt. Elip: 41,0656 m

- Apoio Suplementar

O levantamento dos pontos do apoio suplementar, foram conduzidas segundo o mesmo método de posicionamento, utilizando o sistema GPS.

Foi empregado o método de posicionamento estático, no modo relativo, isto é, foram utilizados dois, rastreando simultaneamente em duas estações distintas, uma das quais, pelo menos com coordenadas já conhecidas, e a outra que se pretende determinar.

Foram utilizados dois receptores geodésicos de dupla frequência, Topcon. Os dados armazenados nas memórias dos receptores foram descarregados em computador portátil e processados diariamente.

3.3.5 Controle de Ondulação do Geóide

A transformação de altitudes geométricas em ortométricas requer a aplicação dos valores de ondulação geoidal.

Esta ondulação “(N)” pode ser definida como sendo a diferença, em metros, entre as superfícies do geóide e do elipsóide em um ponto considerado (Figura 4), e é calculada subtraindo o valor da altitude elipsoidal (h) pelo valor da altitude geoidal (H).

Os valores de ondulação geoidal deste trabalho foram calculadas através do software livre MAPGEO 2015, versão 1.0, disponibilizado pelo IBGE.

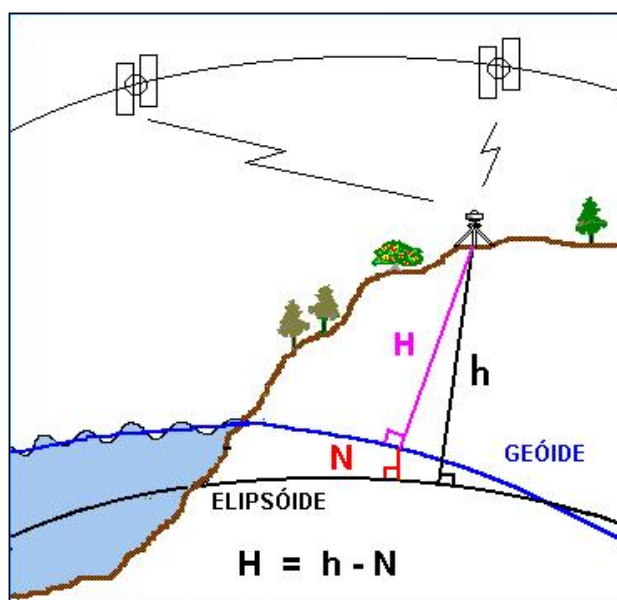


Figura 4 - Ondulação geoidal para um Ponto Considerado
(Fonte IBGE)

3.3.6 Datum

Foi adotado o sistema de projeção UTM, sendo que todos os pontos de apoio geodésico estão referenciados ao “DATUM” SIRGAS-2000 e todas as altitudes estão referenciadas ao Marégrafo de Imbituba-SC.

3.4 Aerotriangulação

A aerotriangulação é um processo que visa determinar as coordenadas em referencial terrestre através da medição de imagens aéreas, utilizando pontos esparsos determinados no terreno.

Após a coleta dos pontos HVs levantados em campo, os dados coletados foram utilizados no processo de aerotriangulação (este processo permite realizar a correção e visualização dos modelos estereoscópicos tridimensionais) com determinação simultânea das posições, altitudes de cada imagem e das coordenadas de pontos fotogramétricos (pontos de passagem).

Este processo foi realizado semi-automaticamente usando a estação fotogramétrica INPHO; neste software os pontos de apoio foram medidos interativamente e os pontos de passagem foram medidos automaticamente por correlação de imagens.

Após a medição dos pontos (fotogramétricos e de passagem) fez-se o ajuste em bloco dos feixes de raios, obtendo-se as coordenadas de terreno dos pontos fotogramétricos e os parâmetros de orientação exterior de cada imagem, com precisão da escala.

3.5 Restituição Aerofotogramétrica Planialtimétrica Digital

A restituição estereofotogramétrica é a fase do projeto que consiste na produção do mapa vetorial do projeto, correspondendo à restituição tridimensional das feições geográficas contidas no modelo estereoscópico, utilizando-se as estações fotogramétricas digitais.

Para a execução da etapa de restituição todos os modelos aerotriangulados foram repassados para a equipe de restituição que fez uma análise da qualidade da aerotriangulação, carregaram os modelos juntamente com as imagens e verificaram a inexistência de desníveis entre os modelos subsequentes e faixas adjacentes.

Assim, na captura de informações gráficas que ocorrem a partir dos elementos resultantes do apoio básico e da aerotriangulação possibilitaram a orientação das imagens que foram utilizadas em estações fotogramétricas.

Todos os equipamentos que foram utilizados para restituição foram compatíveis com a precisão e acurácia do mapeamento solicitado.

De posse das fotografias aéreas devidamente processadas, dos pontos de apoio de campo, dos parâmetros referentes à aerotriangulação, foi realizada a restituição estereofotogramétrica digital dos elementos cartográficos, utilizando-se as estações fotogramétricas digitais.

Estes sistemas são soluções de restituição completas, que oferecem ao usuário uma riqueza de atributos e ferramentas que aumentam a produtividade sem a perda de qualidade.

A exibição de imagens digitais pode ser feita em telas com recurso de visualização estereoscópica.

Essa funcionalidade facilita a detecção de feições e alterações, principalmente na revisão de mapas, exibindo simultaneamente uma ortofoto e um estéreo-modelo.

3.6 Geração de Ortofotos Digitais

Para a obtenção das ortofotos foram realizadas as seguintes etapas:

- Ortorretificação das fotografias;
- Ajuste radiométrico das imagens;
- Mosaicagem e georreferenciamento das imagens.

3.6.1 Ortorretificação das Fotografias

Após a etapa de aerotriangulação das procedeu-se a oratorretificação geométrica das fotografias aéreas.

A oratorretificação pode ser definida como uma transformação geométrica aplicada a imagens digitais onde o objetivo é a correção das distorções inerentes a câmara e as diferenças de relevo encontradas na superfície terrestre.

As ortofotos, com precisão na escala 1:2.000, foram obtidas após a etapa de aerotriangulação e a partir do processo de oratorretificação diferencial das imagens aéreas, através de técnicas de cartografia digital com o emprego de equipamentos e softwares específicos para tal fim.

A ortofoto digital pode ser entendida como um produto cartográfico que alia a riqueza de detalhes de uma fotografia com qualidade geométrica podendo ser utilizada tal qual uma planta, representando os diversos elementos do terreno como em uma planta convencional.

É importante ressaltar que uma fotografia aérea não pode ser utilizada como um documento cartográfico.

Ressalva-se que as principais diferenças entre uma ortofoto e uma imagem fotográfica comum estão na eliminação das distorções dos seguintes fatores inerentes ao processo fotográfico: projeção central do processo fotográfico, variação da topografia do terreno, distorção provocada pelo sistema de lentes da câmara fotográfica, variações na altitude de voo da aeronave e curvatura terrestre.

Assim, devido a não homogeneidade da escala que estas distorções provocam não se podem efetuar medidas de coordenadas, distâncias e áreas diretamente sobre uma fotografia.

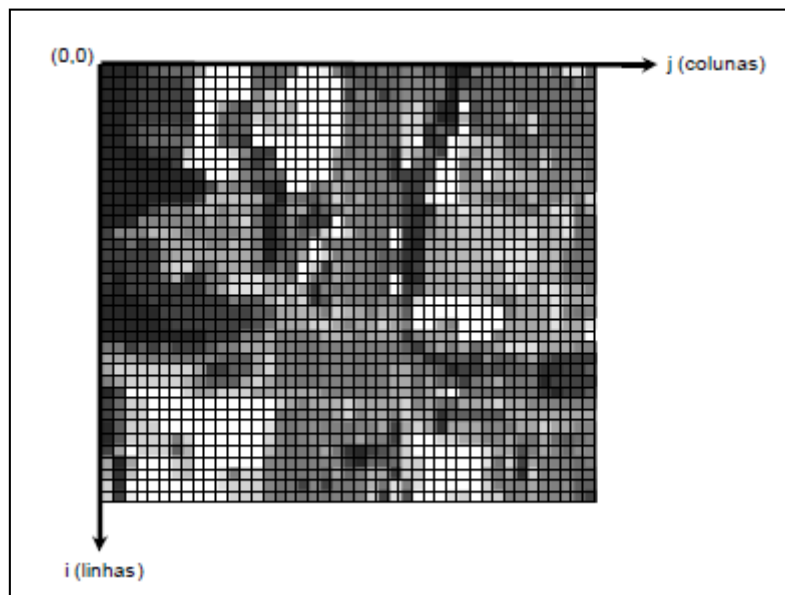
Dessa forma, as correções desses fatores foram aplicadas de modo a tornar a escala homogênea até que as feições do terreno apareçam na sua correta posição.

Uma imagem digital constitui uma matriz bidimensional que define um conjunto de células ou pixels. Cada pixel é definido pelas coordenadas espaciais (x, y) que indicam sua localização na imagem, sendo que a cada posição (x, y) é atribuído um valor digital (nível de cinza) correspondente ao valor radiométrico registrado pela câmara aérea digital.

Desta forma, uma imagem digital pode ser entendida como uma matriz, cujas colunas e linhas identificam um ponto na imagem.

O elemento da matriz correspondente a este ponto identifica o valor de brilho ou nível de cinza. Os elementos dessa matriz foram denominados pixels.

A Figura 5 ilustra esta definição.



*Figura 5 - Representação de uma imagem digital
(Fonte: Consórcio Metroplan Bacia do Rio dos Sinos)*

3.6.2 Ajuste Radiométrico das Imagens

Existem duas componentes principais que definem a qualidade de imagens digitais: a resolução espacial e a radiométrica.

A resolução espacial da imagem está relacionada às dimensões do pixel na imagem, enquanto que a resolução radiométrica da imagem depende dos níveis de quantização adotados. Se uma imagem é quantizada em n bits, ela possuirá 2^n valores de brilho.

Além destas duas resoluções, existem ainda a resolução temporal, que diz respeito à frequência com que imagens da mesma região foram obtidas e a resolução espectral, caracterizada pelo número de bandas espectrais em que a imagem é obtida.

Estas duas últimas resoluções foram mais comuns quando se trata de sensores a bordo de satélites.

Para o início das atividades de produção das ortofotos digitais, foram necessários alguns dados de entrada, como: fotografias aéreas adquiridas. Também foram necessários pontos de checagem para aferição da qualidade dos produtos resultantes.

Este processamento tem o objetivo de manipular as imagens para que as mesmas se tornem um documento cartográfico confiável e passível de se executar medições precisas. Objetiva também corrigir distorções e melhorar a qualidade interpretativa dos dados originais.

As atividades foram desenvolvidas por uma equipe técnica qualificada em Processamento Digital de Imagens - PDI e especializada na manipulação de fotografias aéreas digitais.

3.6.3 Mosaicagem e Georreferenciamento das Imagens

No processo de ortorretificação das imagens é realizado o georreferenciamento das mesmas.

O processo de mosaicagem visa à obtenção de um bloco contínuo de imagens com qualidade uniforme da área do projeto, a partir das fotografias ortorretificadas. Neste processo, foram criadas as linhas de corte entre as ortofotos adjacentes, objetivando a obtenção de um bloco contínuo da área do projeto, denominado mosaico.

Alguns cuidados devem ser tomados para a obtenção de ortofotos de boa qualidade, o principal cuidado está na etapa de mosaicagem.

No processo de mosaicagem foi utilizado o software INPHO, módulo OrthoVista. Para este projeto foi realizada a geração das ortofotos com GSD de 20 cm, referenciados ao datum planimétrico SIRGAS 2000 e projetados para UTM no fuso 22S.

Após a mosaicagem, as ortofotos foram recortadas de acordo com a articulação na escala 1:2.000.

3.7 Anexos

A seguir estão elencados todos arquivos anexos a este documento, tanto em forma gráfica, integrante do mesmo, como em mídia digital, conforme segue:

- Anexo 1 - Autorização do Ministério da Defesa;
- Anexo 2 - Certificado de Calibração da Câmera (Digital);
- Anexo 3 - Dados Técnicos do Recobrimento Aerofotogramétrico;
- Anexo 4 - Coordenadas do Marco Base;
- Anexo 5 - Localização do Marco – Base 02;
- Anexo 6 - Croqui do Apoio Suplementar;
- Anexo 7 - Coordenadas dos Pontos do Apoio Suplementar;
- Anexo 8 - Dados do Processamento GPS;
- Anexo 9 - Monografia dos Marcos;
- Anexo 10 - Dados de Aerotriangulação;
- Anexo 11 - Área da Bacia do Rio dos Sinos;
- Anexo 12 - Mosaico (Digital);
- Anexo 13 - Ortofoto (Digital);
- Anexo 14 - Restituição Aerofotogramétrica (Digital);
- Anexo 15 - Foto Índice;
- Anexo 16 - Planilhas de Resolução (Digital).

ANEXO 1 - AUTORIZAÇÃO DO MINISTÉRIO DA DEFESA



MINISTÉRIO
ESTADO-MAIOR CONJUNTO
CHEFIA DE LA
SUBCHEFIA DE APOIO A SISTEMAS DE CART
SEÇÃO DE CARTOGRAFIA, METEOROLOGIA E AEROLEVANTAMENTOS
Esplanada dos Ministérios - Bloco "Q" - 3º Andar
Tel/Fax: (61) 3312-4161

ARMADAS

LOGÍSTICA E MOBILIZAÇÃO
AEROLEVANTAMENTO
19-900 - Brasília - DF

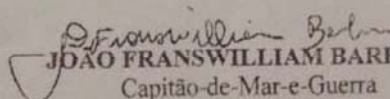
DESTINATÁRIO: Sr. **PETERSON MARTINSKI** – Diretor Técnico
AEROSAT – ENGENHARIA E AEROLEVANTAMENTOS LTDA.
Nº de fax: (41) 3016-9660. Data: **14/10/2015**
REMETENTE: Seção de Cartografia, Meteorologia e Aerolevanteamento – SECMA.
Nº do fax: (61) 3312-4261
Nº do documento: **287/ SEGMA** Nº de páginas: 1
Observações:

ASSUNTO: Concessão de autorização.

Prezado Senhor,

1. Em referência ao Projeto nº 114/2015, informo que:
 - a) foi concedida a Autorização nº 167/2015/MD, expedida em 09/10/2015, à **AEROSAT – ENGENHARIA E AEROLEVANTAMENTOS LTDA.**, no período de 09/10/2015 a 01/12/2015;
 - b) foi emitida a **AVOMD - 203/15**, para o período de 09/10/2015 a 01/12/2015, que deverá constar no **item 18 do plano de voo para as aeronaves PT-VBA e PT-EGT**; e
 - c) está autorizado o voo na altitude compreendida entre 2.000 e 10.000 pés.
2. Por oportuno, solicito que qualquer necessidade de alteração no processo inicial seja encaminhada a esta Seção com a maior brevidade possível.

Atenciosamente,


JOÃO FRANSWILLIAM BARBOSA
Capitão-de-Mar-e-Guerra
Gerente da SECMA

Caso não sejam bem recebidas todas as páginas, favor contatar-nos.



MINISTÉRIO DA DEFESA
ESTADO-MAIOR CONJUNTO DAS FORÇAS ARMADAS
CHEFIA DE LOGÍSTICA
SUBCHEFIA DE APOIO A SISTEMAS DE CARTOGRAFIA LOGÍSTICA E MOBILIZAÇÃO
SEÇÃO DE CARTOGRAFIA, METEOROLOGIA E AEROLEVANTAMENTO
Esplanada dos Ministérios - Bloco "Q" - 3º Andar - Sala 348 - 70049-900 - Brasília - DF
Tel/Fax: (61) 3312-4161 / 3312-4261

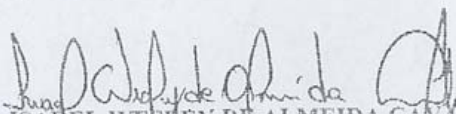
DESTINATÁRIO: Sr. **PETERSON MARTINSKI** – Diretor Técnico
AEROSAT – ENGENHARIA E AEROLEVANTAMENTOS LTDA.
Nº de fax: (41) 3016-9660. Data: 02/12/2015
REMETENTE: Seção de Cartografia, Meteorologia e Aerolevanteamento – SECMA.
Nº do fax: (61) 3312-4261
Nº do documento: 342/SEGMA Nº de páginas: 1
Observações:

ASSUNTO: Prorrogação de prazo.

Prezado Senhor,

1. Em referência ao Projeto nº 114/2015, informo que:
 - a) foi prorrogada a Autorização nº 167/2015/MD, expedida em 09/10/2015, à **AEROSAT – ENGENHARIA E AEROLEVANTAMENTOS LTDA.**, no período de 09/10/2015 a 30/03/2016;
 - b) foi mantida a AVOMD - 203/15, para o período de 09/10/2015 a 30/03/2016, que deverá constar no item 18 do plano de voo para as aeronaves PT-VBA e PT-EGT; e
 - c) está autorizado o voo na altitude compreendida entre 2.000 e 10.000 pés.
2. Por oportuno, solicito que qualquer necessidade de alteração no processo inicial seja encaminhada a esta Seção com a maior brevidade possível.

Atenciosamente,


ISAREL WESLEY DE ALMEIDA CAVALCANTE
Capitão-de-Mar-e-Guerra (RM1-IM)
Coordenador da SECMA

Caso não sejam bem recebidas todas as páginas, favor contatar-nos.

ANEXO 2 - CERTIFICADO DE CALIBRAÇÃO DA CÂMERA

Este anexo está sendo apresentado somente em mídia digital.

ANEXO 3 - DADOS TÉCNICOS DO RECOBRIMENTO AEROFOTOGRAMÉTRICO

Anexo 3 - Dados Técnicos do Recobrimento Aerofotogramétrico

COTA 50 Media

Dados do Projeto

Nome do Projeto:	PL_AR_URB_VOO_SINOS_F22S_V1_COTA MEDIA 50		
Interessado:	PL_AR_URB_VOO_SINOS_F22S_V1_COTA MEDIA 5		
Endereço:	PL_AR_URB_VOO_SINOS_F22S_V1_COTA MEDIA 50		
Telefone:	PL_AR_URB_VOO_	E-mail:	PL_AR_URB_VOO_SINOS_F22S_V1_Cota Media 50
Site:	PL_AR_URB_VOO_SINOS_F22S_V1_Cota Media 50		
Data Inicial:		Data de Término:	
Descrição do Projeto:	PL_AR_URB_VOO_SINOS_F22S_V1_COTA MEDIA 50		

Dados Técnicos

Aeronave			
Nome da Aeronave:	EMB 810 C- SENECA III		
Velocidade (Km/h):	220,000	Velocidade (m/s):	61,111
Teto Operacional (pés):	20000,000	Teto Ideal (pés):	18000,000
Peso Básico (Kg):	1500,000	Peso máximo Decolagem (Kg):	2100,000
Consumo (l/h):	80,000	Capacidade (l):	450,000
Autonomia (horas):	5,625		
Tipo do Motor:	0,000	Potência (HP):	400
Observações:	PILOTO:		

Câmara			
Nome da Aeronave:	Sistema Phase One		
Descrição:		Focal (mm):	50,000
Tamanho do pixel em X (mm):		Tamanho do pixel em Y (mm):	
Resolução em X (pixel):		Resolução em Y (pixel):	
Tempo de Inverso de Exposição (1/s):			

Dados Técnicos					
GSD (m):	0,2	Denominador da Escala da Carta:			
Altitude Média da Região (m):	50	Altura de Vão (m):			
Altitude de Vão (m):	2.163	Altitude de Vão (pés):	7.050		
Superposição Longitudinal (%) :	60,000	Superposição Lateral (%) :	40,000		
Tamanho da imagem no Terreno X (m):	2.064	Tamanho da imagem no Terreno Y (m):	1.550		
Arrastamento (Pixels):	0,6111	Arrastamento (mm):	0,00367		
Elipsóide de Referência:	WGS84 / SIRGAS 2000				

Faixas e Blocos Selecionados:

Tipo	Nome da Faixa/Bloco	Sentido	Margem Lateral (modelos)	Margem Longitudinal (modelos)	Faixas Paralelas	Margem Piloto (Km)	Base Aérea (m)	Avanço Lateral (m)	Comprimento da Faixa (Km)	Total de Faixas	Fotos por Faixa	Total de Fotos	Posição do Quadro	Tempo Entre Tomadas(s)
Bloco	FX01_RIO_SINOS_FOTO	N<->S	0	0	Nenhuma	0	312		4,906	1			Inclinado	
Bloco	FX02_RIO_SINOS_FOTO	N<->S	0	0	Nenhuma	0	312		6,377	1			Inclinado	
Bloco	FX03_RIO_SINOS_FOTO	N<->S	0	0	Nenhuma	0	312		6,868	1			Inclinado	
Bloco	FX04_RIO_SINOS_FOTO	N<->S	0	0	Nenhuma	0	312		24,037	1			Inclinado	
Bloco	FX05_RIO_SINOS_FOTO	N<->S	0	0	Nenhuma	0	312		23,056	1			Inclinado	
Bloco	FX06_RIO_SINOS_FOTO	N<->S	0	0	Nenhuma	0	312		22,566	1			Inclinado	
Bloco	FX07_RIO_SINOS_FOTO	N<->S	0	0	Nenhuma	0	312		22,566	1			Inclinado	
Bloco	FX08_RIO_SINOS_FOTO	N<->S	0	0	Nenhuma	0	312		22,075	1			Inclinado	
Bloco	FX09_RIO_SINOS_FOTO	N<->S	0	0	Nenhuma	0	312		21,094	1			Inclinado	
Bloco	FX10_RIO_SINOS_FOTO	N<->S	0	0	Nenhuma	0	312		18,151	1			Inclinado	

Faixas e Blocos Selecionados:

Tipo	Nome da Faixa/Bloco	Sentido	Margem Lateral (modelos)	Margem Longitudinal (modelos)	Faixas Paralelas	Margem Piloto (Km)	Base Aérea (m)	Avanço Lateral (m)	Comprimento da Faixa (Km)	Total de Faixas	Fotos por Faixa	Total de Fotos	Posição do Quadro	Tempo Entre Tomadas(s)
Bloco	FX11 RIO SINOS FOTO	N<->S	0	0	Nenhuma	0	312		18,151	1			Inclinado	
Bloco	FX12 RIO SINOS FOTO	N<->S	0	0	Nenhuma	0	312		7,849	1			Inclinado	
Faixa	FX13 RIO SINOS FOTO	L<->O	S/Margem	0	Nenhuma	0	312		12,264	1			Inclinado	
Faixa	FX14 RIO SINOS FOTO	L<->O	S/Margem	0	Nenhuma	0	312		19,622	1			Inclinado	
Faixa	FX15 RIO SINOS FOTO	L<->O	S/Margem	0	Nenhuma	0	312		28,943	1			Inclinado	
Faixa	FX16 RIO SINOS FOTO	L<->O	S/Margem	0	Nenhuma	0	312		28,943	1			Inclinado	
Faixa	FX17 RIO SINOS FOTO	L<->O	S/Margem	0	Nenhuma	0	312		28,943	1			Inclinado	
Faixa	FX18 RIO SINOS FOTO	L<->O	S/Margem	0	Nenhuma	0	312		30,415	1			Inclinado	
Faixa	FX19 RIO SINOS FOTO	L<->O	S/Margem	0	Nenhuma	0	312		26,000	1			Inclinado	
Faixa	FX20 RIO SINOS FOTO	L<->O	S/Margem	0	Nenhuma	0	312		23,056	1			Inclinado	

Faixas e Blocos Selecionados:

Tipo	Nome da Faixa/Bloco	Sentido	Margem Lateral (modelos)	Margem Longitudinal (modelos)	Faixas Paralelas	Margem Piloto (Km)	Base Aérea (m)	Avanço Lateral (m)	Comprimento da Faixa (Km)	Total de Faixas	Fotos por Faixa	Total de Fotos	Posição do Quadro	Tempo Entre Tomadas(s)
Faixa	FX21 RIO SINOS FOTO	L<->O	S/Margem	0	Nenhuma	0	312		28,452	1			Inclinado	
Faixa	FX22 RIO SINOS FOTO	L<->O	S/Margem	0	Nenhuma	0	312		14,717	1			Inclinado	
Faixa	FX23 RIO SINOS FOTO	L<->O	S/Margem	0	Nenhuma	0	312		12,264	1			Inclinado	
Faixa	FX24 RIO SINOS FOTO	L<->O	S/Margem	0	Nenhuma	0	312		12,264	1			Inclinado	
Faixa	FX25 RIO SINOS FOTO	L<->O	S/Margem	0	Nenhuma	0	312		12,264	1			Inclinado	
Total Geral de Fotos:														

FX01_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
476575,951	6693790,006	476575,951	6689021,200	0,294336	1			4,906	0,000	1,338	0,000	1,338	1,338

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-01 A	CPs Imagens	476575,951	6693790,006	22	J	-29° 53' 10,637912	-051° 14' 33,329256
WPT-01 B	CPs Imagens	476575,951	6688884,406	22	J	-29° 55' 50,014767	-051° 14' 33,715550

FX02_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
478020,751	6694868,249	478020,751	6688538,810	0,294336	1			6,377	0,000	1,739	0,000	1,739	1,739

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-02 A	CPs Imagens	478020,751	6694868,249	22	J	-29° 52' 35,702932	-051° 13' 39,382939
WPT-02 B	CPs Imagens	478020,751	6688490,969	22	J	-29° 56' 2,893162	-051° 13' 39,854074

FX03_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
479465,551	6695192,911	479465,551	6688538,810	0,294336	1			6,868	0,000	1,873	0,000	1,873	1,873

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-03 A	CPs Imagens	479465,551	6695192,911	22	J	-29° 52' 25,244825	-051° 12' 45,498968
WPT-03 B	CPs Imagens	479465,551	6688325,071	22	J	-29° 56' 8,373013	-051° 12' 45,972976

FX04_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
480910,351	6712800,203	480910,351	6688538,810	0,294336	1			24,037	0,000	6,556	0,000	6,556	6,556

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-04 A	CPs Imagens	480910,351	6712800,203	22	J	-29° 42' 53,277847	-051° 11' 50,515416
WPT-04 B	CPs Imagens	480910,351	6688762,763	22	J	-29° 55' 54,236882	-051° 11' 52,051415

FX05_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
482355,151	6712800,203	482355,151	6689827,492	0,294336	1			23,056	0,000	6,288	0,000	6,288	6,288

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-05 A	CPs Imagens	482355,151	6712800,203	22	J	-29° 42' 53,354965	-051° 10' 56,740296
WPT-05 B	CPs Imagens	482355,151	6689743,883	22	J	-29° 55' 22,439273	-051° 10' 58,101792

FX06_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
483799,951	6712667,169	483799,951	6690025,960	0,294336	1			22,566	0,000	6,154	0,000	6,154	6,154

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-06 A	CPs Imagens	483799,951	6712667,169	22	J	-29° 42' 57,748273	-051° 10' 2,972296
WPT-06 B	CPs Imagens	483799,951	6690101,409	22	J	-29° 55' 10,895314	-051° 10' 4,195652

FX07_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
485244,751	6712800,203	485244,751	6690226,923	0,294336	1			22,566	0,000	6,154	0,000	6,154	6,154

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-07 A	CPs Imagens	485244,751	6712800,203	22	J	-29° 42' 53,491003	-051° 09' 9,189894
WPT-07 B	CPs Imagens	485244,751	6690234,443	22	J	-29° 55' 6,638712	-051° 09' 10,304080

FX08_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
486689,551	6712667,169	486689,551	6690375,975	0,294336	1			22,075	0,000	6,021	0,000	6,021	6,021

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-08 A	CPs Imagens	486689,551	6712667,169	22	J	-29° 42' 57,872185	-051° 08' 15,420516
WPT-08 B	CPs Imagens	486689,551	6690591,969	22	J	-29° 54' 55,082485	-051° 08' 16,403704

FX09_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
488134,351	6712800,203	488134,351	6691512,768	0,294336	1			21,094	0,000	5,753	0,000	5,753	5,753

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-09 A	CPs Imagens	488134,351	6712800,203	22	J	-29° 42' 53,602776	-051° 07' 21,639305
WPT-09 B	CPs Imagens	488134,351	6691706,123	22	J	-29° 54' 18,938054	-051° 07' 22,476581

FX10_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
489579,151	6712800,203	489579,151	6694581,522	0,294336	1	38	38	18,151	0,000	4,950	0,000	4,950	4,950

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-10 A	CPs Imagens	489579,151	6712800,203	22	J	-29° 42' 53,649563	-051° 06' 27,863952
WPT-10 B	CPs Imagens	489579,151	6694649,483	22	J	-29° 52' 43,358159	-051° 06' 28,496252

FX11_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
491023,951	6712800,203	491023,951	6694685,599	0,294336	1			18,151	0,000	4,950	0,000	4,950	4,950

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
0001	CPs Imagens	491023,951	6712800,203	22	J	-29° 42' 53,690283	-051° 05' 34,088566
0038	CPs Imagens	491023,951	6694649,483	22	J	-29° 52' 43,399150	-051° 05' 34,633201

FX12_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
492468,751	6712800,203	492468,751	6704816,885	0,294336	1			7,849	0,000	2,141	0,000	2,141	2,141
Tempo Total da Faixa/Bloco (horas):													0,036
Consumo estimado de combustível para a Faixa/Bloco (litros):													2,854

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-12 A	CPs Imagens	492468,751	6712800,203	22	J	-29° 42' 53,724938	-051° 04' 40,313152
WPT-12 B	CPs Imagens	492468,751	6704951,243	22	J	-29° 47' 8,736071	-051° 04' 40,510298

FX13_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
480124,500	6711222,369	492505,874	6711222,369	0,294336	1			12,264	0,000	3,345	0,000	3,345	3,345

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-13 A	CPs Imagens	480124,500	6711222,369	22	J	-29° 43' 44,496801	-051° 12' 19,869022
WPT-13 B	CPs Imagens	492388,500	6711222,369	22	J	-29° 43' 44,986900	-051° 04' 43,340089

FX14_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
472871,008	6712667,169	492525,956	6712667,169	0,294336	1			19,622	0,000	5,352	0,000	5,352	5,352

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-14 A	CPs Imagens	472871,008	6712667,169	22	J	-29° 42' 57,060176	-051° 16' 49,748678
WPT-14 B	CPs Imagens	492493,408	6712667,169	22	J	-29° 42' 58,047747	-051° 04' 39,398744

FX15_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
472795,855	6714111,969	501826,676	6714111,969	0,294336	1			28,943	0,000	7,894	0,000	7,894	7,894

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-15 A	CPs Imagens	472795,855	6714111,969	22	J	-29° 42' 10,113213	-051° 16' 52,415053
WPT-15 B	CPs Imagens	501738,895	6714111,969	22	J	-29° 42' 11,183643	-050° 58' 55,285881

FX16_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
472795,855	6715556,769	501826,676	6715556,769	0,294336	1			28,943	0,000	7,894	0,000	7,894	7,894

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-16 A	CPs Imagens	472795,855	6715556,769	22	J	-29° 41' 23,172092	-051° 16' 52,284325
WPT-16 B	CPs Imagens	501738,895	6715556,769	22	J	-29° 41' 24,241958	-050° 58' 55,294238

FX17_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
472795,855	6717001,569	501826,676	6717001,569	0,294336	1			28,943	0,000	7,894	0,000	7,894	7,894

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-17 A	CPs Imagens	472795,855	6717001,569	22	J	-29° 40' 36,230878	-051° 16' 52,153684
WPT-17 B	CPs Imagens	501738,895	6717001,569	22	J	-29° 40' 37,300181	-050° 58' 55,302588

FX18_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
472795,855	6718446,369	503074,781	6718446,369	0,294336	1			30,415	0,000	8,295	0,000	8,295	8,295

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-18 A	CPs Imagens	472795,855	6718446,369	22	J	-29° 39' 49,289572	-051° 16' 52,023129
WPT-18 B	CPs Imagens	503210,575	6718446,369	22	J	-29° 39' 50,347750	-050° 58' 0,562605

FX19_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
477459,640	6719891,169	503339,986	6719891,169	0,294336	1			26,000	0,000	7,091	0,000	7,091	7,091

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-19 A	CPs Imagens	477459,640	6719891,169	22	J	-29° 39' 2,684399	-051° 13' 58,418580
WPT-19 B	CPs Imagens	503459,320	6719891,169	22	J	-29° 39' 3,403389	-050° 57' 51,325573

FX20_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
481450,518	6721335,969	504457,844	6721335,969	0,294336	1			23,056	0,000	6,288	0,000	6,288	6,288

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-20 A	CPs Imagens	481450,518	6721335,969	22	J	-29° 38' 15,980264	-051° 11' 29,884442
WPT-20 B	CPs Imagens	504506,838	6721335,969	22	J	-29° 38' 16,449254	-050° 57' 12,383232

FX21_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
481450,518	6722780,769	509927,411	6722780,769	0,294336	1			28,452	0,000	7,760	0,000	7,760	7,760

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-21 A	CPs Imagens	481450,518	6722780,769	22	J	-29° 37' 29,038378	-051° 11' 29,795595
WPT-21 B	CPs Imagens	509902,998	6722780,769	22	J	-29° 37' 29,394546	-050° 53' 51,738732

FX22_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
495358,351	6724225,569	509848,309	6724225,569	0,294336	1			14,717	0,000	4,014	0,000	4,014	4,014

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-22 A	CPs Imagens	495358,351	6724225,569	22	J	-29° 36' 42,563111	-051° 02' 52,586161
WPT-22 B	CPs Imagens	510075,151	6724225,569	22	J	-29° 36' 42,447403	-050° 53' 45,385139

FX23_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
505798,159	6719373,393	513073,398	6729381,868	0,294336	1		26	12,264	0,000	3,345	0,000	3,345	3,345

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-23 A	CPs Imagens	505798,159	6719373,393	22	J	-29° 39' 20,194701	-050° 56' 24,319131
WPT-23 B	CPs Imagens	513009,129	6729293,454	22	J	-29° 33' 57,691127	-050° 51' 56,512111

FX24_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
511904,733	6730231,380	504629,494	6720222,904	0,294336	1			12,264	0,000	3,345	0,000	3,345	3,345

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-24 A	CPs Imagens	504629,494	6720222,904	22	J	-29° 38' 52,611497	-050° 57' 7,804360
WPT-24 B	CPs Imagens	511840,464	6730142,965	22	J	-29° 33' 30,131872	-050° 52' 39,979031

FX25_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
503460,830	6721072,416	510736,069	6731080,891	0,294336	1			12,264	0,000	3,345	0,000	3,345	3,345

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-25 A	CPs Imagens	503460,830	6721072,416	22	J	-29° 38' 25,024261	-050° 57' 51,282969
WPT-25 B	CPs Imagens	510671,800	6730992,477	22	J	-29° 33' 2,568606	-050° 53' 23,439331

COTA 150 Media

Dados do Projeto

Nome do Projeto:	PL_AR_URB_VOO_SINOS_F22S_V1_COTA MEDIA 150		
Interessado:	PL_AR_URB_VOO_SINOS_F22S_V1_COTA MEDIA 150		
Endereço:	PL_AR_URB_VOO_SINOS_F22S_V1_COTA MEDIA 150		
Telefone:	PL_AR_URB_VOO_	E-mail:	PL_AR_URB_VOO_SINOS_F22S_V1_COTA MEDIA 150
Site:	PL_AR_URB_VOO_SINOS_F22S_V1_COTA MEDIA 150		
Data Inicial:		Data de Término:	
Descrição do Projeto:	PL_AR_URB_VOO_SINOS_F22S_V1_COTA MEDIA 150		

Dados Técnicos

Aeronave			
Nome da Aeronave:	EMB 810 C- SENECA III		
Velocidade (Km/h):	220,000	Velocidade (m/s):	61,111
Teto Operacional (pés):	20000,000	Teto Ideal (pés):	18000,000
Peso Básico (Kg):	1500,000	Peso máximo Decolagem (Kg):	2100,000
Consumo (l/h):	80,000	Capacidade (l):	450,000
Autonomia (horas):	5,625		
Tipo do Motor:	0,000	Potência (HP):	400
Observações:	PILOTO:		

Câmara			
Nome da Aeronave:	Sistema Phase One		
Descrição:		Focal (mm):	50,000
Tamanho do pixel em X (mm):		Tamanho do pixel em Y (mm):	
Resolução em X (pixel):		Resolução em Y (pixel):	
Tempo de Inverso de Exposição (1/s):			

Dados Técnicos					
GSD (m):	0,2	Denominador da Escala da Carta:			
Altitude Média da Região (m):	150	Altura de Vão (m):			
Altitude de Vão (m):	2.263'	Altitude de Vão (pés):	7.540		
Superposição Longitudinal (%):	60,000	Superposição Lateral (%):	40,000		
Tamanho da imagem no Terreno X (m):	2.064	Tamanho da imagem no Terreno Y (m):	1.550		
Arrastamento (Pixels):	0,6111	Arrastamento (mm):	0,00367		
Elipsóide de Referência:	WGS84 / SIRGAS 2000				

Faixas e Blocos

Faixas e Blocos Selecionados:														
Tipo	Nome da Faixa/Bloco	Sentido	Margem Lateral (modelos)	Margem Longitudinal (modelos)	Faixas Paralelas	Margem Piloto (Km)	Base Aérea (m)	Avanço Lateral (m)	Comprimento da Faixa (Km)	Total de Faixas	Fotos por Faixa	Total de Fotos	Posição do Quadro	Tempo Entre Tomadas(s)
Faixa	FX26_RIO_SINOS_FOTO	L<->O	S/Margem	0	Nenhuma	0	312		8,830	1			Inclinado	8,027345
Faixa	FX27_RIO_SINOS_FOTO	L<->O	S/Margem	0	Nenhuma	0	312		8,830	1			Inclinado	8,027345
Faixa	FX28_RIO_SINOS_FOTO	L<->O	S/Margem	0	Nenhuma	0	312		8,830	1			Inclinado	8,027345
Faixa	FX29_RIO_SINOS_FOTO	L<->O	S/Margem	0	Nenhuma	0	312		14,717	1			Inclinado	8,027345
Faixa	FX30_RIO_SINOS_FOTO	L<->O	S/Margem	0	Nenhuma	0	312		26,000	1			Inclinado	8,027345
Faixa	FX31_RIO_SINOS_FOTO	L<->O	S/Margem	0	Nenhuma	0	312		26,000	1			Inclinado	8,027345
Faixa	FX32_RIO_SINOS_FOTO	L<->O	S/Margem	0	Nenhuma	0	312		26,000	1			Inclinado	8,027345
Faixa	FX33_RIO_SINOS_FOTO	L<->O	S/Margem	0	Nenhuma	0	312		26,000	1			Inclinado	8,027345
Faixa	FX34_RIO_SINOS_FOTO	L<->O	S/Margem	0	Nenhuma	0	312		9,321	1			Inclinado	8,027345
Faixa	FX35_RIO_SINOS_FOTO	L<->O	S/Margem	0	Nenhuma	0	312		9,321	1			Inclinado	8,027345

Faixas e Blocos Selecionados:

Tipo	Nome da Faixa/Bloco	Sentido	Margem Lateral (modelos)	Margem Longitudinal (modelos)	Faixas Paralelas	Margem Piloto (Km)	Base Aérea (m)	Avanço Lateral (m)	Comprimento da Faixa (Km)	Total de Faixas	Fotos por Faixa	Total de Fotos	Posição do Quadro	Tempo Entre Tomadas(s)
Faixa	FX36 RIO SINOS FOTO	L<->O	S/Margem	0	Nenhuma	0	312		9,321	1			Inclinado	8,027345
Faixa	FX37 RIO SINOS FOTO	L<->O	S/Margem	0	Nenhuma	0	312		9,321	1			Inclinado	8,027345
Total Geral de Fotos:														

FX26_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
513587,506	6726145,567	514014,559	6717137,744	0,294336	1			8,830	0,000	2,408	0,000	2,408	2,408

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-26 A	CPs Imagens	513587,506	6726145,567	22	J	-29° 35' 39,945534	-050° 51' 34,875193
WPT-26 B	CPs Imagens	514005,663	6717325,394	22	J	-29° 40' 26,498886	-050° 51' 18,920386

FX27_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
515030,685	6726213,987	515457,738	6717206,164	0,294336	1			8,830	0,000	2,408	0,000	2,408	2,408

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-27 A	CPs Imagens	515030,685	6726213,987	22	J	-29° 35' 37,662815	-050° 50' 41,227588
WPT-27 B	CPs Imagens	515448,842	6717393,814	22	J	-29° 40' 24,214250	-050° 50' 25,230698

FX28_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
516473,864	6726282,407	516900,917	6717274,584	0,294336	1		19	8,830	0,000	2,408	0,000	2,408	2,408

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-28 A	CPs Imagens	516473,864	6726282,407	22	J	-29° 35' 35,374076	-050° 49' 47,580683
WPT-26 B	CPs Imagens	516892,021	6717462,234	22	J	-29° 40' 21,923576	-050° 49' 31,541715

FX29_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
517642,291	6732146,180	518344,096	6717343,003	0,294336	1		31	14,717	0,000	4,014	0,000	4,014	4,014

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-29 A	CPs Imagens	517642,291	6732146,180	22	J	-29° 32' 24,799139	-050° 49' 4,486180
WPT-29 B	CPs Imagens	518339,218	6717445,891	22	J	-29° 40' 22,380588	-050° 48' 37,698773

FX30_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
518679,750	6740772,457	519917,956	6714654,955	0,294336	1	54	54	26,000	0,000	7,091	0,000	7,091	7,091

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-30 A	CPs Imagens	518679,750	6740772,457	22	J	-29° 27' 44,469564	-050° 48' 26,469411
WPT-30 B	CPs Imagens	519910,987	6714801,947	22	J	-29° 41' 48,194981	-050° 47' 39,047218

FX31_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
520122,929	6740840,876	521361,135	6714723,375	0,294336	1		54	26,000	0,000	7,091	0,000	7,091	7,091

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-31 A	CPs Imagens	520122,929	6740840,876	22	J	-29° 27' 42,166019	-050° 47' 32,892731
WPT-31 B	CPs Imagens	521354,166	6714870,366	22	J	-29° 41' 45,885589	-050° 46' 45,346999

FX32_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
521566,108	6740909,296	522804,314	6714791,794	0,294336	1			26,000	0,000	7,091	0,000	7,091	7,091

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-32 A	CPs Imagens	521566,108	6740909,296	22	J	-29° 27' 39,856454	-050° 46' 39,316762
WPT-32 B	CPs Imagens	522797,345	6714938,786	22	J	-29° 41' 43,570121	-050° 45' 51,647507

FX33_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
523009,287	6740977,716	524247,494	6714860,214	0,294336	1			26,000	0,000	7,091	0,000	7,091	7,091

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-33 A	CPs Imagens	523009,287	6740977,716	22	J	-29° 27' 37,540903	-050° 45' 45,741510
WPT-33 B	CPs Imagens	524240,525	6715007,206	22	J	-29° 41' 41,248608	-050° 44' 57,948705

FX34_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
544544,862	6724319,969	538176,598	6717324,727	0,294336	1			9,321	0,000	2,542	0,000	2,542	2,542

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-34 A	CPs Imagens	538176,598	6717324,727	22	J	-29° 40' 24,690891	-050° 36' 19,654626
WPT-34 B	CPs Imagens	544451,167	6724217,050	22	J	-29° 36' 40,012007	-050° 32' 27,233753

FX35_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
539244,982	6716352,101	545613,247	6723347,343	0,294336	1			9,321	0,000	2,542	0,000	2,542	2,542

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-35 A	CPs Imagens	539244,982	6716352,101	22	J	-29° 40' 56,170907	-050° 35' 39,779798
WPT-35 B	CPs Imagens	545519,552	6723244,423	22	J	-29° 37' 11,472967	-050° 31' 47,363935

FX36_RIO_SINOS_FOTO

E0	N0	E1	N1	B/Z	Núm. Faixas	Fotos por Faixa	Total Fotos	Comprimento da Faixa (Km)	Comprimento do Alinhamento (Km)	Tempo por Faixa (minutos)	Tempo Por Alinhamento (minutos)	Total por Faixa (minutos)	Total por Bloco/Faixas Paralelas (minutos)
548081,922	6722856,837	556732,589	6719028,762	0,294336	1			9,321	0,000	2,542	0,000	2,542	2,542
Tempo Total da Faixa/Bloco (horas):													0,042

Informações sobre os CPs

Identificador	Tipo CP	Coordenada E	Coordenada N	Fuso	Zona UTM	Latitude	Longitude
WPT-36 A	CPs Imagens	548081,922	6722856,837	22	J	-29° 37' 23,718188	-050° 30' 12,023824
WPT-36 B	CPs Imagens	556605,314	6719085,084	22	J	-29° 39' 24,965746	-050° 24' 54,377279

ANEXO 4 - COORDENADAS DO MARCO BASE



PROJETO

Project name: Gravatai_Sinos 22 01 2016 MR 03 - Base 02.ttp
Project folder: G:\Dados\Jobs
Creation time: 30/7/2013 13:17:07
Created by:
Comment:
Linear unit: Meters
Angular unit: DMS
Projection: UTMSouth-Zone_22 : 54W to 48W
Datum: SIRGAS2000
Geoid:

AJUSTAMENTO

COORDENADAS UTM				
Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Código
BASE-02	6721948,241	500329,3889	41,9595	
MR03_EMTK	6710402,027	485462,4774	12,0868	

COORDENADAS GEOGRÁFICAS				
Nome	Latitude	Longitude	Alt Elip (m)	Código
BASE-02	29°37'56,585547S	50°59'47,750149W	41,9595	
MR03_EMTK	29°44'11,416610S	51°09'01,202278W	12,0868	



PROJETO

Project name: Gravatai_Sinos 16 01 2016.ttp
Project folder: G:\Dados\Jobs
Creation time: 30/7/2013 13:17:07
Created by:
Comment:
Linear unit: Meters
Angular unit: DMS
Projection: UTMSouth-Zone_22 : 54W to 48W
Datum: SIRGAS2000
Geoid:

AJUSTAMENTO

COORDENADAS UTM				
Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Código
BASE-01	6687868,404	498550,9884	68,14	
MR03	6710402,027	485462,4774	12,0868	

COORDENADAS GEOGRÁFICAS				
Nome	Latitude	Longitude	Alt Elip (m)	Código
BASE-01	29°56'23,824700S	51°00'54,053200W	68,14	
MR03	29°44'11,416614S	51°09'01,202278W	12,0868	



PROJETO

Project name: Gravatai_Sinos 24 01 2016.ttp
 Project folder: G:\Dados\Jobs
 Creation time: 30/7/2013 13:17:07
 Created by:
 Comment:
 Linear unit: Meters
 Angular unit: DMS
 Projection: UTMSouth-Zone_22 : 54W to 48W
 Datum: SIRGAS2000
 Geoid:

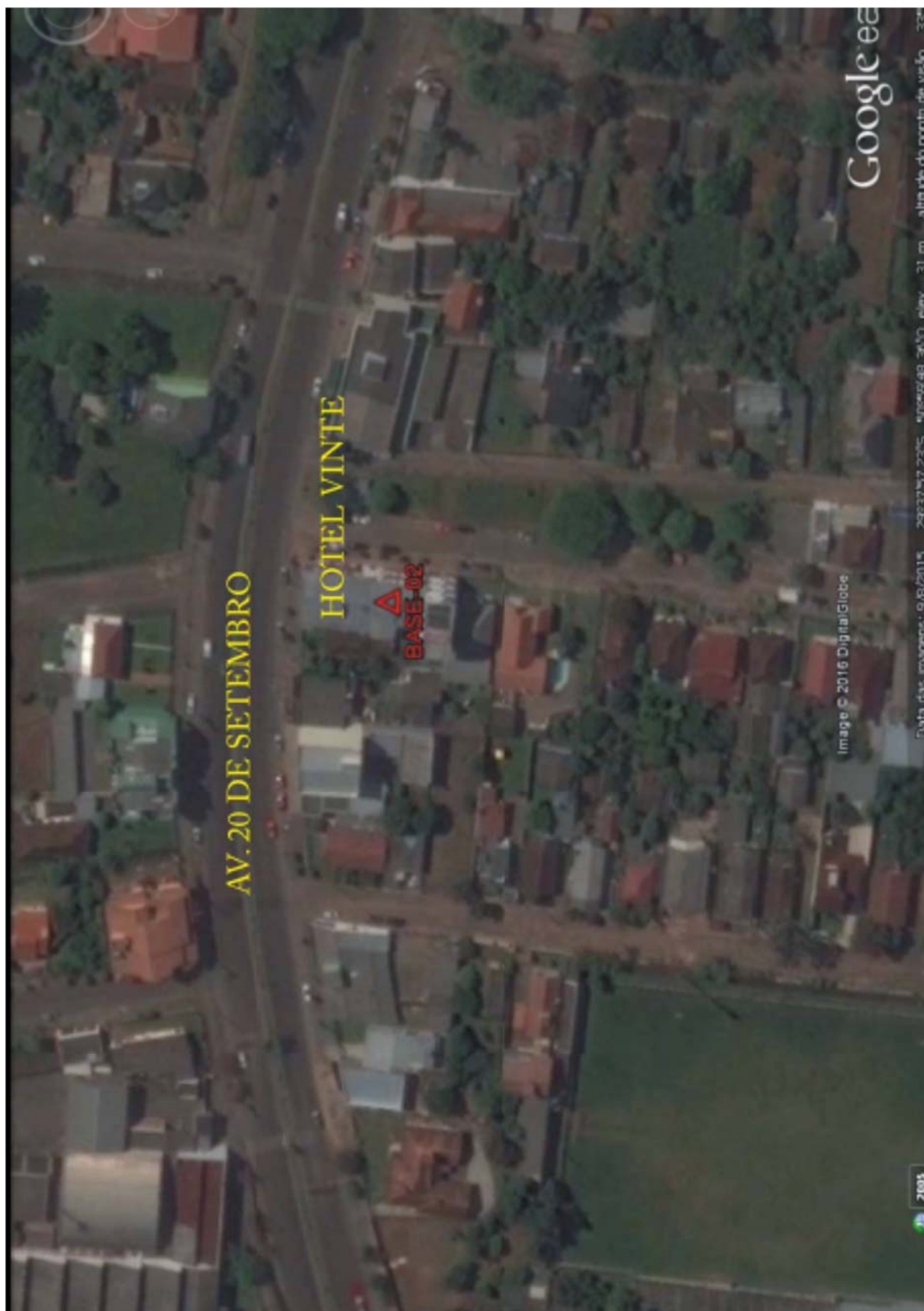
AJUSTAMENTO

COORDENADAS UTM				
Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Código
BASE-02	6721948,241	500329,3889	41,9595	
MR04	6719541,211	521562,8713	41,0656	

COORDENADAS GEOGRÁFICAS				
Nome	Latitude	Longitude	Alt Elip (m)	Código
BASE-02	29°37'56,585555S	50°59'47,750149W	41,9595	
MR04	29°39'14,117022S	50°46'37,915131W	41,0656	

ANEXO 5 - LOCALIZAÇÃO DO MARCOS – BASE 02, MR 03 e MR 04

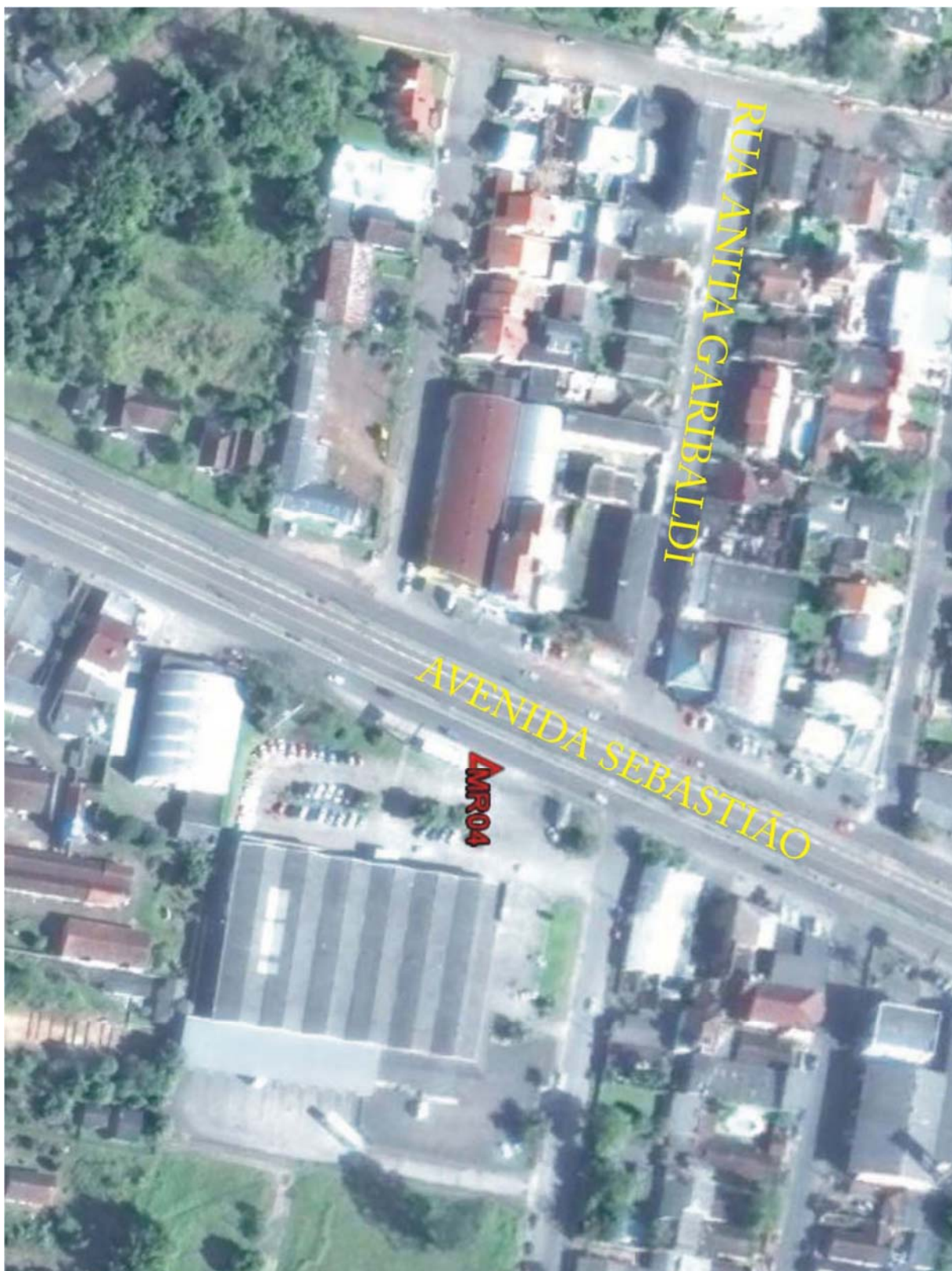
Localização Base - 02



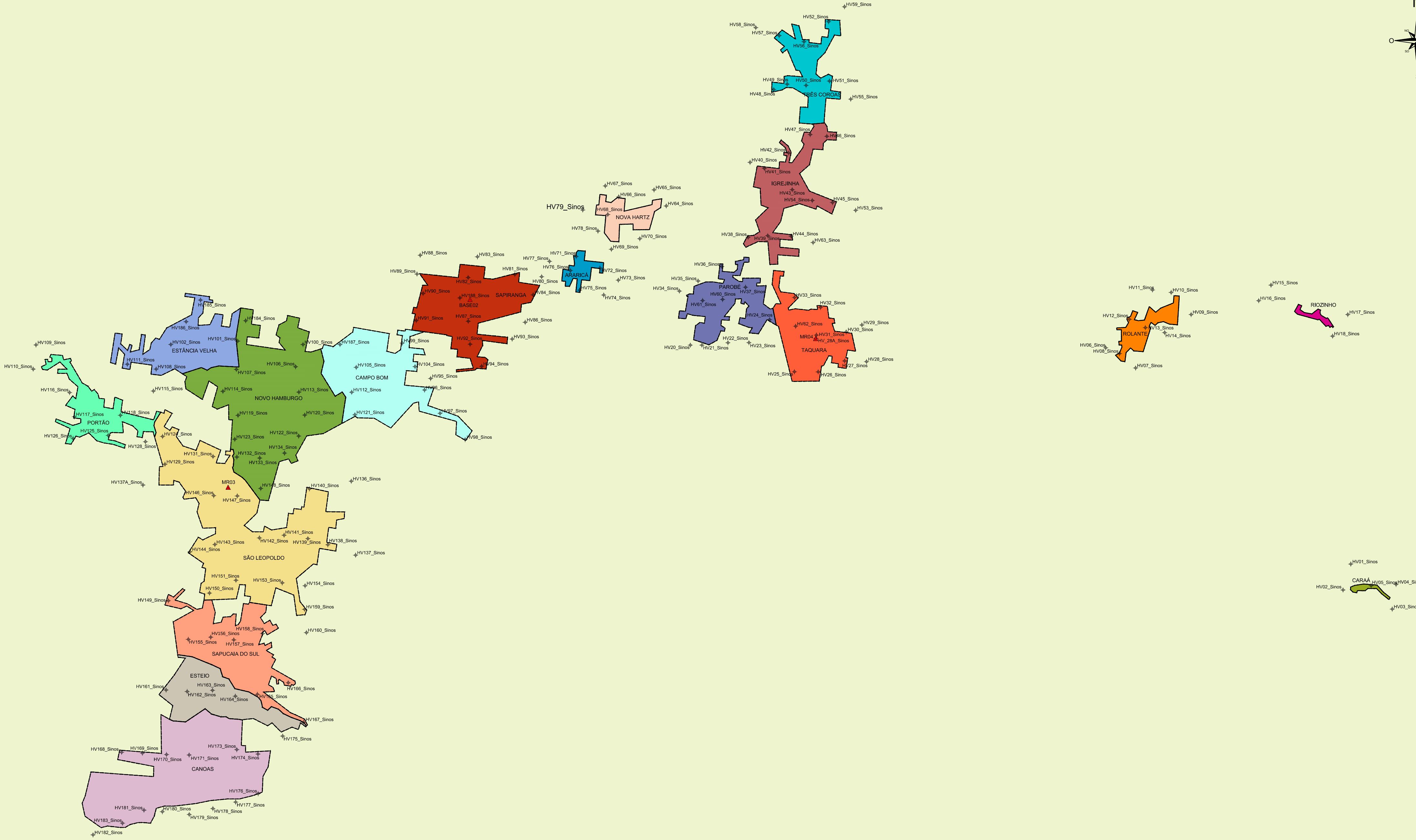
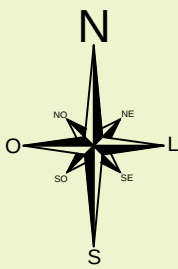
Localização MR - 03



Localização MR - 04



ANEXO 6 - CROQUI DO APOIO SUPLEMENTAR





GOVERNO DO ESTADO
RIO GRANDE DO SUL



COHIDRO
Configuração Hidráulica de Projetos

LEGENDA:

- ▲ MR01 - MARCO DE REFERÊNCIA
- ◆ HV79_GRA - PONTO DE APOIO SUPLEMENTAR
- LIMITE MUNICIPAL

RESPONSÁVEIS TÉCNICOS:

ENGRº ORGEL CARVALHO FILHO CREA RJ 077384
ENGRº LUCIANO BEZERRA CREA RJ 055454
ENGRº WELLINGTON COIMBRA LOU CREA RJ 22434-D

0	EMISSÃO INICIAL	L. FILIPE	L. FILIPE	THIAGO	2012/08
REVISÃO	DESCRIÇÃO	DESENHO	VERIFICAÇÃO	APROVAÇÃO	DATA

ESCALA
1:150.000

NOBRE DO ARQUIVO
Ocupação de Apoio Suplementar - Bacia do Rio dos Sinos.DWG

CODIGO
16001-D-TOP-01-02-00

Nº FOLHA
1/1



ESTUDO DE ALTERNATIVAS E PROJETOS PARA MINIMIZAÇÃO DO EFEITO DAS CHEIAS NA BACIA DO RIO DOS SINOS

PONTOS DE APOIO SUPLEMENTAR
BACIA DO RIO DOS SINOS

840x420cm

ANEXO 7 - COORDENADAS DOS PONTOS DO APOIO SUPLEMENTAR

Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Ondulação Geoidal (N)	Alt Orto (m)
HV90-Sinos	6.722.312,535	497.441,884	72,08	4,84	67,24
HV91-Sinos	6.720.651,280	497.024,890	52,83	4,8	48,03
HV95-Sinos	6.717.082,643	497.903,002	63,48	4,7	58,78
HV96-Sinos	6.716.375,739	497.532,849	25,70	4,7	21,00
HV99-Sinos	6.719.259,589	496.161,952	38,62	4,77	33,85
HV100-Sinos	6.719.169,746	490.064,567	49,75	4,82	44,93
HV101-Sinos	6.719.383,751	486.052,317	42,29	4,85	37,44
HV104-Sinos	6.717.813,622	496.949,860	44,82	4,73	40,09
HV105-Sinos	6.717.766,359	493.331,035	75,88	4,77	71,11
HV106-Sinos	6.717.805,319	489.604,700	44,80	4,79	40,01
HV109-Sinos	6.719.146,993	473.657,819	50,79	4,88	45,91
HV110-Sinos	6.717.663,867	473.486,607	73,58	4,88	68,70
HV116-Sinos	6.716.219,463	475.721,590	57,64	4,88	52,76
HV117-Sinos	6.714.733,913	476.017,377	50,27	4,88	45,39
HV118-Sinos	6.714.822,418	478.844,771	23,85	4,87	18,98
HV125-Sinos	6.713.585,593	478.096,751	30,03	4,87	25,16
HV126-Sinos	6.713.393,660	475.933,119	51,77	4,88	46,89
HV132-Sinos	6.712.257,158	485.999,093	21,16	4,74	16,42
HV146-Sinos	6.709.881,938	484.574,997	8,99	4,77	4,22
HV184-Sinos	6.720.635,564	486.536,953	44,72	4,88	39,84
HV187-Sinos	6.719.173,918	492.337,753	42,62	4,8	37,82
HV97-Sinos	6.714.946,665	498.485,225	14,58	4,66	9,92
HV98-Sinos	6.713.328,260	500.024,253	17,48	4,61	12,87
HV112-Sinos	6.716.242,184	493.057,173	52,48	4,74	47,74
HV113-Sinos	6.716.247,735	489.810,867	67,88	4,75	63,13
HV119-Sinos	6.714.817,007	486.068,536	54,17	4,76	49,41
HV120-Sinos	6.714.833,027	490.169,891	21,18	4,73	16,45
HV121-Sinos	6.714.853,554	493.254,086	15,42	4,72	10,70
HV122-Sinos	6.713.545,034	489.800,458	15,60	4,71	10,89
HV123-Sinos	6.713.348,634	485.872,912	35,71	4,75	30,96
HV133-Sinos	6.712.195,524	487.404,298	14,30	4,72	9,58
HV134-Sinos	6.712.499,322	488.926,853	34,32	4,7	29,62
HV136-Sinos	6.710.770,002	493.032,337	12,59	4,68	7,91
HV140-Sinos	6.710.299,383	490.456,030	11,36	4,7	6,66
HV147-Sinos	6.709.866,140	486.024,550	9,96	4,75	5,21
HV148-Sinos	6.710.325,390	487.464,529	7,96	4,73	3,23
HV137-Sinos	6.706.227,651	493.295,105	38,06	4,66	33,40
HV138-Sinos	6.706.863,451	491.590,628	30,72	4,69	26,03
HV139-Sinos	6.707.239,652	490.365,202	53,80	4,71	49,09
HV141-Sinos	6.707.452,828	488.902,840	38,52	4,73	33,79
HV142-Sinos	6.707.286,618	487.384,143	14,15	4,75	9,40
HV143-Sinos	6.706.879,237	484.650,412	8,55	4,78	3,77
HV144-Sinos	6.706.437,810	483.120,625	6,97	4,78	2,19
HV149-Sinos	6.703.422,590	481.788,448	8,69	4,79	3,90
HV151-Sinos	6.704.684,781	485.943,681	43,90	4,78	39,12
HV153-Sinos	6.704.521,584	488.789,940	42,00	4,75	37,25

Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Ondulação Geoidal (N)	Alt Orto (m)
HV154-Sinos	6.704.344,513	490.190,104	77,71	4,72	72,99
HV155-Sinos	6.701.050,440	483.014,933	9,71	4,79	4,92
HV156-Sinos	6.701.183,693	484.396,517	24,98	4,78	20,20
HV159-Sinos	6.702.900,554	490.158,215	50,11	4,71	45,40
HV160-Sinos	6.701.465,371	490.271,074	66,58	4,7	61,88
HV161-Sinos	6.697.937,311	481.649,600	9,37	4,83	4,54
HV162-Sinos	6.697.845,930	482.944,199	12,96	4,81	8,15
HV163-Sinos	6.697.921,872	484.503,322	35,43	4,78	30,65
HV164-Sinos	6.697.560,407	485.902,105	26,54	4,76	21,78
HV168-Sinos	6.694.112,272	478.917,731	7,84	4,9	2,94
HV169-Sinos	6.694.056,336	480.198,465	8,17	4,88	3,29
HV170-Sinos	6.693.972,394	481.678,916	8,67	4,85	3,82
HV171-Sinos	6.693.942,826	483.069,739	25,45	4,82	20,63
HV173-Sinos	6.694.273,096	485.994,073	21,54	4,77	16,77
HV174-Sinos	6.693.998,613	487.298,217	37,35	4,75	32,60
HV175-Sinos	6.695.104,819	488.812,639	25,78	4,72	21,06
HV176-Sinos	6.691.567,613	487.310,624	43,68	4,77	38,91
HV177-Sinos	6.691.049,099	485.925,381	38,46	4,8	33,66
HV178-Sinos	6.690.648,127	484.524,729	26,68	4,82	21,86
HV179-Sinos	6.690.284,399	483.074,559	24,02	4,84	19,18
HV180-Sinos	6.690.458,451	481.419,866	8,36	4,86	3,50
HV181-Sinos	6.690.556,607	480.293,771	8,83	4,88	3,95
HV182-Sinos	6.689.033,147	477.159,520	7,26	4,93	2,33
HV183-Sinos	6.689.752,345	478.972,976	7,75	4,9	2,85
HV150-Sinos	6.703.896,192	484.314,879	51,24	4,78	46,46
HV157-Sinos	6.701.020,037	485.812,676	31,56	4,76	26,80
HV158-Sinos	6.701.405,590	487.586,799	136,33	4,75	131,58
HV165-Sinos	6.697.673,745	487.254,727	49,36	4,73	44,63
HV166-Sinos	6.698.381,269	489.156,900	123,75	4,71	119,04
HV167-Sinos	6.695.960,448	490.098,142	29,32	4,69	24,63
HV80-Sinos	6.723.339,234	504.726,608	55,07	4,74	50,33
HV81-Sinos	6.723.474,913	503.083,508	82,76	4,76	78,00
HV82-Sinos	6.723.287,829	500.209,346	40,37	4,81	35,56
HV84-Sinos	6.722.222,889	504.201,605	46,85	4,71	42,14
HV86-Sinos	6.720.537,277	503.714,600	37,05	4,68	32,37
HV87-Sinos	6.720.603,761	500.219,068	28,31	4,74	23,57
HV88-Sinos	6.724.656,705	497.265,813	45,54	4,9	40,64
HV89-Sinos	6.723.504,606	497.064,808	56,20	4,87	51,33
HV92-Sinos	6.719.188,975	500.333,249	48,23	4,7	43,53
HV93-Sinos	6.719.507,565	502.915,489	61,96	4,67	57,29
HV94-Sinos	6.717.835,918	501.043,693	19,50	4,66	14,84
HV102-Sinos	6.719.170,977	481.943,342	40,21	4,88	35,33
HV107-Sinos	6.717.644,837	485.969,897	39,87	4,82	35,05
HV108-Sinos	6.717.661,031	481.041,205	41,19	4,87	36,32
HV111-Sinos	6.717.957,368	479.269,539	53,51	4,88	48,63
HV115-Sinos	6.716.315,236	480.868,767	31,22	4,86	26,36
HV124-Sinos	6.713.522,764	481.434,644	57,57	4,84	52,73

Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Ondulação Geoidal (N)	Alt Orto (m)
HV128-Sinos	6.713.196,069	480.381,969	55,53	4,85	50,68
HV129-Sinos	6.711.816,195	481.581,446	32,76	4,83	27,93
HV131-Sinos	6.712.292,435	484.533,859	42,47	4,77	37,70
HV137A-Sinos	6.710.535,418	480.230,657	29,99	4,83	25,16
HV185-Sinos	6.721.903,074	483.763,041	47,86	4,91	42,95
HV186-Sinos	6.720.577,063	482.880,775	39,18	4,9	34,28
HV188-Sinos	6.722.033,942	499.704,869	30,51	4,79	25,72
HV20-Sinos	6.719.133,512	513.861,281	22,16	4,59	17,57
HV21-Sinos	6.719.135,503	514.571,504	43,76	4,58	39,18
HV22-Sinos	6.719.279,845	516.172,711	68,41	4,57	63,84
HV23-Sinos	6.719.286,127	517.461,071	46,06	4,57	41,49
HV24-Sinos	6.720.699,528	518.734,780	26,67	4,59	22,08
HV25-Sinos	6.717.497,134	520.257,184	27,35	4,5	22,85
HV26-Sinos	6.717.490,282	521.717,687	36,17	4,48	31,69
HV27-Sinos	6.718.165,997	523.343,489	30,95	4,48	26,47
HV34-Sinos	6.722.457,324	513.192,621	60,90	4,67	56,23
HV37-Sinos	6.722.690,130	517.252,117	34,01	4,65	29,36
HV60-Sinos	6.721.941,332	515.842,539	42,23	4,64	37,59
HV61-Sinos	6.721.871,094	514.615,198	37,74	4,64	33,10
HV62-Sinos	6.720.294,951	520.331,003	27,01	4,57	22,44
HV64-Sinos	6.727.688,892	512.382,066	57,06	4,82	52,24
HV65-Sinos	6.728.677,164	511.634,960	53,79	4,88	48,91
HV66-Sinos	6.728.246,889	509.464,340	48,88	4,87	44,01
HV67-Sinos	6.728.920,561	508.639,060	171,95	4,9	167,05
HV68-Sinos	6.727.162,372	508.788,646	48,43	4,84	43,59
HV69-Sinos	6.725.027,318	509.010,228	26,54	4,76	21,78
HV70-Sinos	6.725.674,003	510.756,600	38,94	4,77	34,17
HV72-Sinos	6.723.873,563	508.304,352	37,71	4,74	32,97
HV73-Sinos	6.723.127,467	509.436,012	25,30	4,71	20,59
HV74-Sinos	6.722.213,201	508.538,762	25,51	4,69	20,82
HV78-Sinos	6.726.144,692	508.188,931	35,03	4,8	30,23
HV79-Sinos	6.727.443,040	507.254,191	63,63	4,85	58,78
HV71-Sinos	6.724.581,287	506.851,682	42,22	4,76	37,46
HV75-Sinos	6.722.509,609	507.059,571	44,56	4,7	39,86
HV76-Sinos	6.723.718,059	506.490,534	44,79	4,74	40,05
HV77-Sinos	6.724.283,982	505.209,358	83,08	4,76	78,32
HV83-Sinos	6.724.563,876	500.781,423	66,17	4,83	61,34
HV114-Sinos	6.716.294,958	485.141,409	71,14	4,8	66,34
HV-28A-Sinos	6.719.544,584	521.578,221	40,82	4,53	36,29
HV10-Sinos	6.722.374,173	543.405,584	240,89	4,44	236,45
HV11-Sinos	6.722.527,354	542.257,815	63,06	4,45	58,61
HV12-Sinos	6.720.719,691	540.836,364	52,42	4,37	48,05
HV13-Sinos	6.720.209,519	541.821,887	55,11	4,36	50,75
HV14-Sinos	6.719.905,263	543.007,471	47,50	4,35	43,16
HV15-Sinos	6.722.822,474	549.538,858	70,18	4,43	65,75
HV16-Sinos	6.721.867,223	548.783,190	65,34	4,4	60,94
HV17-Sinos	6.721.011,403	554.261,145	227,89	4,33	223,56

Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Ondulação Geoidal (N)	Alt Orto (m)
HV18-Sinos	6.719.688,966	553.323,513	132,69	4,31	128,38
HV46-Sinos	6.731.968,634	522.250,046	48,93	4,77	44,16
HV47-Sinos	6.732.074,429	521.225,791	46,94	4,77	42,17
HV48-Sinos	6.734.838,083	518.987,634	117,70	4,92	112,78
HV49-Sinos	6.735.171,648	519.810,544	87,97	4,93	83,04
HV50-Sinos	6.735.098,566	520.973,697	63,05	4,92	58,13
HV51-Sinos	6.735.367,145	522.406,443	83,99	4,93	79,06
HV52-Sinos	6.739.015,145	522.355,420	78,74	5,13	73,61
HV56-Sinos	6.737.781,764	520.845,624	70,82	5,07	65,75
HV57-Sinos	6.738.161,475	519.325,540	87,32	5,1	82,22
HV58-Sinos	6.738.650,013	517.885,059	92,78	5,13	87,65
HV59-Sinos	6.739.932,557	523.338,786	78,10	5,18	72,92
HV06-Sinos	6.718.969,796	539.382,142	52,87	4,32	48,55
HV07-Sinos	6.717.729,247	541.221,162	124,19	4,28	119,91
HV08-Sinos	6.718.614,384	540.233,423	40,66	4,31	36,35
HV09-Sinos	6.721.014,628	544.633,924	63,36	4,39	58,97
HV28-Sinos	6.718.120,716	524.689,854	27,59	4,46	23,13
HV29-Sinos	6.720.374,905	524.403,472	41,60	4,49	37,11
HV30-Sinos	6.719.945,754	523.439,813	34,04	4,51	29,53
HV32-Sinos	6.721.452,916	521.861,904	63,75	4,57	59,18
HV33-Sinos	6.722.061,821	520.264,037	38,49	4,61	33,88
HV35-Sinos	6.723.078,325	514.336,113	50,46	4,67	45,79
HV36-Sinos	6.723.969,276	515.797,041	86,01	4,68	81,33
HV01-Sinos	6.705.678,419	554.442,120	46,31	3,87	42,44
HV02-Sinos	6.704.087,545	553.964,143	47,44	3,82	43,62
HV03-Sinos	6.702.910,907	556.992,371	74,09	3,8	70,29
HV04-Sinos	6.704.426,152	557.224,060	74,53	3,83	70,70
HV05-Sinos	6.704.352,598	555.695,786	45,50	3,83	41,67
HV39-Sinos	6.725.856,670	518.616,237	31,92	4,7	27,22
HV40-Sinos	6.730.367,471	517.531,438	145,07	4,79	140,28
HV41-Sinos	6.729.990,296	518.415,134	99,14	4,75	94,39
HV42-Sinos	6.730.944,067	519.906,914	50,98	4,74	46,24
HV43-Sinos	6.728.683,288	520.122,874	39,17	4,71	34,46
HV44-Sinos	6.725.828,668	520.060,028	43,61	4,68	38,93
HV45-Sinos	6.727.896,244	522.598,125	150,88	4,68	146,20
HV53-Sinos	6.727.422,127	524.024,861	313,37	4,66	308,71
HV54-Sinos	6.728.022,735	521.358,095	59,36	4,69	54,67
HV63-Sinos	6.725.440,805	521.403,805	119,50	4,66	114,84
HV31-Sinos	6.719.752,267	521.609,890	37,74	4,53	33,21
HV38-Sinos	6.725.758,895	517.410,628	31,35	4,71	26,64

ANEXO 8 – PONTOS DE APOIO

Anexo 8 - Pontos de Apoio Bacia do Rio Sinos A

PROJETO						
Project name: Gravatai_Sinos 15 01 2016.ttp						
Project folder: G:\Dados\Jobs						
Creation time: 30/7/2013 13:17:07						
Created by:						
Comment:						
Linear unit: Meters						
Angular unit: DMS						
Projection: UTMSouth-Zone_22 : 54W to 48W						
Datum: SIRGAS2000						
Geoid:						
AJUSTAMENTO						
COORDENADAS UTM						
Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Código		
BASE-01	6687868,404	498550,9884	68,14			
HV150-SINOS	6703896,192	484314,8786	51,2437			
HV157-SINOS	6701020,037	485812,676	31,5552			
HV158-SINOS	6701405,59	487586,7985	136,3316			
HV165-SINOS	6697673,745	487254,7267	49,3572			
HV166-SINOS	6698381,269	489156,9003	123,7542			
HV167-SINOS	6695960,448	490098,1425	29,3202			
COORDENADAS GEOGRÁFICAS						
Nome	Latitude	Longitude	Alt Elip (m)	Código		
BASE-01	29°56'23,824700S	51°00'54,053200W	68,14			
HV150-SINOS	29°47'42,738309S	51°09'44,265494W	51,2437			
HV157-SINOS	29°49'16,248180S	51°08'48,609691W	31,5552			
HV158-SINOS	29°49'03,790646S	51°07'42,491267W	136,3316			
HV165-SINOS	29°51'05,023595S	51°07'55,022883W	49,3572			
HV166-SINOS	29°50'42,102210S	51°06'44,102305W	123,7542			
HV167-SINOS	29°52'00,781413S	51°06'09,104367W	29,3202			
DESVIO PADRÃO						
Nome	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão Hz (m)	Desv Padrão u (m)	Código	
BASE-01	0	0	0	0		
HV150-SINOS	0,03085	0,02837	0,04191	0,1145		
HV157-SINOS	0,00848	0,00631	0,01057	0,02		
HV158-SINOS	0,00948	0,00737	0,01201	0,0213		
HV165-SINOS	0,01082	0,00783	0,01335	0,0387		
HV166-SINOS	0,01286	0,01304	0,01832	0,0329		
HV167-SINOS	0,00367	0,00886	0,00959	0,0341		
FATOR DE ESCALA						
Nome	Fator de Escala Combinado Proj ao Terr	Convergência	Código			
BASE-01	1,000410834	0°00'26,9775				
HV157-SINOS	1,00040263	0°04'22,8752				
HV158-SINOS	1,000419665	0°03'49,9705				
HV165-SINOS	1,000405905	0°03'56,4440				
HV166-SINOS	1,000418141	0°03'21,1040				
HV167-SINOS	1,000403553	0°03'03,8092				
PRECISÃO						
Nome	dN (m)	dE (m)	dZ (m)	Precisão Horizontal (m)	Precisão Vertical (m)	
BASE-01-HV150-SINOS	16027,7876	-14236,1098	-16,8963	0,0418	0,1146	
BASE-01-HV157-SINOS	13151,6329	-12738,3124	-36,5848	0,0106	0,02	
BASE-01-HV158-SINOS	13537,1863	-10964,1898	68,1916	0,012	0,0213	
BASE-01-HV165-SINOS	9805,3413	-11296,2617	-18,7828	0,0133	0,0387	
BASE-01-HV166-SINOS	10512,865	-9394,0881	55,6142	0,0183	0,0329	
BASE-01-HV167-SINOS	8092,0439	-8452,8459	-38,8197	0,0096	0,0341	
DISTÂNCIA E PDOP						
Nome	Distancia (m)	PDOP	HDOP	VDOP	Status	
BASE-01-HV150-SINOS	21446,0279	2,912	1,262	2,624	PostProcessed	
BASE-01-HV157-SINOS	18316,772	2,428	1,104	2,162	PostProcessed	
BASE-01-HV158-SINOS	17427,7243	1,853	0,912	1,613	PostProcessed	
BASE-01-HV165-SINOS	14964,4043	3,535	1,398	3,247	PostProcessed	
BASE-01-HV166-SINOS	14104,5071	2,319	1,083	2,051	PostProcessed	
BASE-01-HV167-SINOS	11706,6146	6,116	2,17	5,718	PostProcessed	
DURAÇÃO E INTERVALO						
Nome	Hora Início	Duração	Tipo antena Base	Alt Antena Base (m)	Tipo Antena Rover	Altura Antena Rover (m)
BASE-01-HV150-SINOS	15/01/2016 19:20	00:29:45	TPSHIPER_SR	1,522	Legant E	2,5
BASE-01-HV157-SINOS	15/01/2016 17:44	00:31:30	TPSHIPER_SR	1,522	Legant E	2,5
BASE-01-HV158-SINOS	15/01/2016 18:28	00:31:05	TPSHIPER_SR	1,522	Legant E	2,5
BASE-01-HV165-SINOS	15/01/2016 16:20	00:21:50	TPSHIPER_SR	1,522	Legant E	2,5
BASE-01-HV166-SINOS	15/01/2016 16:52	00:29:15	TPSHIPER_SR	1,522	Legant E	2,5
BASE-01-HV167-SINOS	15/01/2016 15:45	00:22:05	TPSHIPER_SR	1,522	Legant E	3,5
PONTO DE CONTROLE						
Nome	Latitude	Longitude	Alt Elip (m)	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão u (m)
BASE-01	29°56'23,824700S	51°00'54,053200W	68,14	0	0	0
PONTOS AJUSTADOS						
Nome	Latitude	Longitude	Alt Elip (m)	Malha Norte (m)	Malha Este (m)	
no data met						

Anexo 8 - Pontos de Apoio Bacia do Rio Sinos B

PROJETO					
Project name: Gravataí_Sinos 19 01 2016.ttp					
Project folder: G:\Dados\Jobs					
Creation time: 30/7/2013 13:17:07					
Created by:					
Comment:					
Linear unit: Meters					
Angular unit: DMS					
Projection: UTMSouth-Zone_22 : 54W to 48W					
Datum: SIRGAS2000					
Geoid:					
AJUSTAMENTO					
COORDENADAS UTM					
Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Código	
HV97_SINOS	6714946,665	498485,2254	14,5781		
HV98_SINOS	6713328,26	500024,2529	17,4754		
HV112_SINOS	6716242,184	493057,1734	52,4839		
HV113_SINOS	6716247,735	489810,8672	67,8766		
HV119_SINOS	6714817,007	486068,5365	54,1664		
HV120_SINOS	6714833,027	490169,8906	21,1809		
HV121_SINOS	6714853,554	493254,0857	15,4217		
HV122_SINOS	6713545,034	489800,4576	15,6045		
HV123_SINOS	6713348,634	485872,9122	35,713		
HV133_SINOS	6712195,524	487404,2978	14,2956		
HV134_SINOS	6712499,322	488926,8533	34,3213		
HV136_SINOS	6710770,002	493032,3374	12,5869		
HV140_SINOS	6710299,383	490456,0296	11,3581		
HV147_SINOS	6709866,14	486024,5495	9,9565		
HV148_SINOS	6710325,39	487464,5286	7,9556		
MR03	6710402,027	485462,4774	12,0868		
COORDENADAS GEOGRÁFICAS					
Nome	Latitude	Longitude	Alt Elip (m)	Código	
HV38-GRA	29°59'27,425355S	51°02'25,848618W	22,9295		
HV97_SINOS	29°41'44,065358S	51°00'56,369125W	14,5781		
HV98_SINOS	29°42'36,650763S	50°59'59,097349W	17,4754		
HV112_SINOS	29°41'01,907179S	51°04'18,332585W	52,4839		
HV113_SINOS	29°41'01,646107S	51°06'19,122635W	67,8766		
HV119_SINOS	29°41'47,999498S	51°08'38,435213W	54,1664		
HV120_SINOS	29°41'47,620504S	51°06'05,810160W	21,1809		
HV121_SINOS	29°41'47,027796S	51°04'11,036916W	15,4217		
HV122_SINOS	29°42'29,456669S	51°06'19,601647W	15,6045		
HV123_SINOS	29°42'35,698880S	51°08'45,784028W	35,713		
HV133_SINOS	29°43'13,222776S	51°07'48,837179W	14,2956		
HV134_SINOS	29°43'03,404790S	51°06'52,153524W	34,3213		
HV136_SINOS	29°43'59,697903S	51°04'19,383589W	12,5869		
HV140_SINOS	29°44'14,926400S	51°05'55,306080W	11,3581		
HV147_SINOS	29°44'28,850767S	51°08'40,302499W	9,9565		
HV148_SINOS	29°44'13,985381S	51°07'46,673375W	7,9556		
MR03	29°44'11,416614S	51°09'01,202278W	12,0868		
DESVIO PADRÃO					
Nome	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão Hz (m)	Desv Padrão u (m)	Código
HV97_SINOS	0,0065	0,00487	0,00812	0,0179	
HV98_SINOS	0,00831	0,00722	0,01101	0,0209	
HV112_SINOS	0,00789	0,00694	0,01051	0,0197	
HV113_SINOS	0,07388	0,06726	0,09991	0,3349	
HV119_SINOS	0,00628	0,00568	0,00847	0,0148	
HV120_SINOS	0,0166	0,01799	0,02448	0,0443	
HV121_SINOS	0,02338	0,01836	0,02973	0,0693	
HV122_SINOS	0,00263	0,00303	0,00401	0,0118	
HV123_SINOS	0,00508	0,00425	0,00662	0,0119	
HV133_SINOS	0,0069	0,0043	0,00813	0,0162	
HV134_SINOS	0,00527	0,00266	0,0059	0,0085	
HV136_SINOS	0,00429	0,00357	0,00558	0,0085	
HV140_SINOS	0,00233	0,002	0,00307	0,0086	
HV147_SINOS	0,00296	0,0023	0,00375	0,0092	
HV148_SINOS	0,00209	0,00196	0,00286	0,0059	
MR03					
FATOR DE ESCALA					
Nome	Fator de Escala Combinado Proj ao Terr	Convergência	Código		
HV97_SINOS	1,000402421	0°00'27,9248			
HV98_SINOS	1,000402904	-0°00'00,4474			
HV112_SINOS	1,000407806	0°02'07,9300			
HV113_SINOS	1,000409536	0°03'07,7466			
HV119_SINOS	1,000406269	0°04'16,8374			
HV120_SINOS	1,000402293	0°03'01,2249			
HV121_SINOS	1,00040202	0°02'04,3647			
HV122_SINOS	1,000401326	0°03'08,1242			
HV123_SINOS	1,000403304	0°04'20,5837			
HV133_SINOS	1,000400446	0°03'52,4343			
HV134_SINOS	1,000404035	0°03'24,3153			
HV136_SINOS	1,000401537	0°02'08,6446			

HV140 SINOS	1,000400819	0°02'56,2415				
HV147 SINOS	1,000399312	0°04'18,1149				
HV148 SINOS	1,000399469	0°03'51,4809				
MR03	1,000399448	0°04'28,4433				
PRECISÃO						
Nome	dN (m)	dE (m)	dZ (m)	Precisão Horizontal (m)	Precisão Vertical (m)	
HV38-GRA-MR03	28185,4225	-10629,7342	-10,8427	0,0103	0,0202	
HV97 SINOS-MR03	-4544,638	-13022,748	-2,4913	0,0081	0,0179	
HV98 SINOS-MR03	-2926,2331	-14561,7755	-5,3886	0,011	0,0209	
HV112 SINOS-MR03	-5840,1564	-7594,696	-40,3971	0,0105	0,0197	
HV113 SINOS-MR03	-5845,7077	-4348,3899	-55,7898	0,0999	0,3349	
HV119 SINOS-MR03	-4414,9795	-606,0591	-42,0796	0,0085	0,0148	
HV120 SINOS-MR03	-4430,9997	-4707,4133	-9,0941	0,0245	0,0443	
HV121 SINOS-MR03	-4451,5271	-7791,6083	-3,3349	0,0297	0,0693	
HV122 SINOS-MR03	-3143,0066	-4337,9802	-3,5177	0,004	0,0118	
HV123 SINOS-MR03	-2946,6071	-410,4348	-23,6262	0,0066	0,0119	
HV133 SINOS-MR03	-1793,4973	-1941,8204	-2,2088	0,0081	0,0162	
HV134 SINOS-MR03	-2097,2949	-3464,3759	-22,2345	0,0059	0,0085	
HV136 SINOS-MR03	-367,9749	-7569,8601	-0,5001	0,0056	0,0085	
HV140 SINOS-MR03	102,6445	-4993,5523	0,7287	0,0031	0,0086	
HV147 SINOS-MR03	535,8868	-562,0722	2,1303	0,0038	0,0092	
HV148 SINOS-MR03	76,6376	-2002,0512	4,1312	0,0029	0,0059	
DISTÂNCIA E PDOP						
Nome	Distancia (m)	PDOP	HDOP	VDOP	Status	
HV97 SINOS-MR03	13798,4908	2,617	1,181	2,336	PostProcessed	
HV98 SINOS-MR03	14858,8461	2,03	0,976	1,78	PostProcessed	
HV112 SINOS-MR03	9584,4969	2,092	1,011	1,831	PostProcessed	
HV113 SINOS-MR03	7288,8171	2,764	1,199	2,491	PostProcessed	
HV119 SINOS-MR03	4458,3771	2,77	1,458	2,355	PostProcessed	
HV120 SINOS-MR03	6467,387	2,52	1,191	2,221	PostProcessed	
HV121 SINOS-MR03	8977,1834	3,174	1,309	2,892	PostProcessed	
HV122 SINOS-MR03	5359,0633	3,904	0,983	3,778	PostProcessed	
HV123 SINOS-MR03	2976,3426	8,322	3,261	7,657	PostProcessed	
HV133 SINOS-MR03	2644,4081	3,972	2,056	3,399	PostProcessed	
HV134 SINOS-MR03	4051,4468	3,595	1,982	2,999	PostProcessed	
HV136 SINOS-MR03	7581,8342	1,944	1,033	1,647	PostProcessed	
HV140 SINOS-MR03	4996,6058	2,585	0,923	2,414	PostProcessed	
HV147 SINOS-MR03	776,9081	4,178	1,514	3,894	PostProcessed	
HV148 SINOS-MR03	2004,3221	2,588	1,184	2,301	PostProcessed	
DURAÇÃO E INTERVALO						
Nome	Hora Início	Duração	Tipo antena Base	Alt Antena Base (m)	Tipo Antena Rover	Altura Antena Rover (m)
HV97 SINOS-MR03	19/01/2016 17:41	00:31:20	Legant E	2	TPSHIPER SR	1,5
HV98 SINOS-MR03	19/01/2016 18:21	00:30:50	Legant E	2	TPSHIPER SR	1,5
HV112 SINOS-MR03	19/01/2016 16:59	00:22:55	Legant E	2	TPSHIPER SR	1,5
HV113 SINOS-MR03	19/01/2016 19:21	00:20:35	Legant E	4	TPSHIPER SR	1,5
HV119 SINOS-MR03	19/01/2016 15:01	00:17:15	Legant E	2,5	TPSHIPER SR	1,5
HV120 SINOS-MR03	19/01/2016 15:49	00:20:10	Legant E	2	TPSHIPER SR	1,5
HV121 SINOS-MR03	19/01/2016 16:23	00:26:55	Legant E	3,25	TPSHIPER SR	1,5
HV122 SINOS-MR03	19/01/2016 13:25	00:20:30	Legant E	3	TPSHIPER SR	1,5
HV123 SINOS-MR03	19/01/2016 14:36	00:16:45	Legant E	2,5	TPSHIPER SR	1,5
HV133 SINOS-MR03	19/01/2016 11:16	00:16:40	Legant E	3	TPSHIPER SR	1,5
HV134 SINOS-MR03	19/01/2016 11:42	00:16:35	Legant E	2,4	TPSHIPER SR	1,5
HV136 SINOS-MR03	19/01/2016 12:13	00:20:35	Legant E	3,7	TPSHIPER SR	1,5
HV140 SINOS-MR03	19/01/2016 12:48	00:16:35	Legant E	2,4	TPSHIPER SR	1,5
HV147 SINOS-MR03	19/01/2016 10:12	00:22:40	Legant E	2,4	TPSHIPER SR	1,5
HV148 SINOS-MR03	19/01/2016 10:48	00:17:00	Legant E	2,7	TPSHIPER SR	1,5
PONTO DE CONTROLE						
Nome	Latitude	Longitude	Alt Elip (m)	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão u (m)
MR03	29°44'11,416614S	51°09'01,202278W	12,0868	0	0	0
PONTOS AJUSTADOS						
Nome	Latitude	Longitude	Alt Elip (m)	Malha Norte (m)	Malha Este (m)	

no data met

Anexo 8 - Pontos de Apoio Bacia do Rio Sinos C

PROJETO							
Project name: Gravatai_SINOS 20 01 2016.ttp							
Project folder: G:\Dados\Jobs							
Creation time: 30/7/2013 13:17:07							
Created by:							
Comment:							
Linear unit: Meters							
Angular unit: DMS							
Projection: UTMSouth-Zone_22 : 54W to 48W							
Datum: SIRGAS2000							
Geoid:							
AJUSTAMENTO							
COORDENADAS UTM							
Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Código			
HV90-SINOS	6722312,535	497441,8845	72,0783				
HV91-SINOS	6720651,28	497024,8901	52,834				
HV95-SINOS	6717082,643	497903,0023	63,4774				
HV96-SINOS	6716375,739	497532,8492	25,7007				
HV99-SINOS	6719259,589	496161,9517	38,6229				
HV100-SINOS	6719169,746	490064,5673	49,7476				
HV101-SINOS	6719383,751	486052,3169	42,2916				
HV104-SINOS	6717813,622	496949,8603	44,817				
HV105-SINOS	6717766,359	493331,0354	75,8832				
HV106-SINOS	6717805,319	489604,7004	44,7983				
HV109-SINOS	6719146,993	473657,8186	50,791				
HV110-SINOS	6717663,867	473486,6072	73,5752				
HV116-SINOS	6716219,463	475721,5904	57,6432				
HV117-SINOS	6714733,913	476017,3767	50,2653				
HV118-SINOS	6714822,418	478844,7711	23,8501				
HV125-SINOS	6713585,593	478096,7506	30,0271				
HV126-SINOS	6713393,66	475933,1191	51,774				
HV132-SINOS	6712257,158	485999,0926	21,1645				
HV146-SINOS	6709881,938	484574,9965	8,9883				
HV184-SINOS	6720635,564	486536,9527	44,7238				
HV187-SINOS	6719173,918	492337,7528	42,6188				
MR03	6710402,027	485462,4774	12,0868				
COORDENADAS GEOGRÁFICAS							
Nome	Latitude	Longitude	Alt Elip (m)	Código			
HV90-SINOS	29°37'44,740184S	51°01'35,132279W	72,0783				
HV91-SINOS	29°38'38,711658S	51°01'50,656031W	52,834				
HV95-SINOS	29°40'34,664073S	51°01'18,020432W	63,4774				
HV96-SINOS	29°40'57,629063S	51°01'31,798063W	25,7007				
HV99-SINOS	29°39'23,919603S	51°02'22,769818W	38,6229				
HV100-SINOS	29°39'26,716868S	51°06'09,586409W	49,7476				
HV101-SINOS	29°39'19,624893S	51°08'38,827158W	42,2916				
HV104-SINOS	29°40'10,907317S	51°01'53,475413W	44,817				
HV105-SINOS	29°40'12,391884S	51°04'08,108804W	75,8832				
HV106-SINOS	29°40'11,033813S	51°06'26,739988W	44,7983				
HV109-SINOS	29°39'26,593273S	51°16'19,896200W	50,791				
HV110-SINOS	29°40'14,766760S	51°16'26,395563W	73,5752				
HV116-SINOS	29°41'01,859904S	51°15'03,363201W	57,6432				
HV117-SINOS	29°41'50,145864S	51°14'52,475984W	50,2653				
HV118-SINOS	29°41'47,455687S	51°13'07,253357W	23,8501				
HV125-SINOS	29°42'27,593103S	51°13'35,179531W	30,0271				
HV126-SINOS	29°42'33,684484S	51°14'55,718796W	51,774				
HV132-SINOS	29°43'11,165995S	51°08'41,138714W	21,1645				
HV146-SINOS	29°44'28,275500S	51°09'34,268015W	8,9883				
HV184-SINOS	29°38'38,972459S	51°08'20,743752W	44,7238				
HV187-SINOS	29°39'26,639306S	51°04'45,026553W	42,6188				
MR03	29°44'11,416614S	51°09'01,202278W	12,0868				
DESVIO PADRÃO							
Nome	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão Hz (m)	Desv Padrão u (m)	Código		
HV90-SINOS	0,00557	0,00478	0,00734	0,0145			
HV91-SINOS	0,0044	0,00549	0,00704	0,0133			
HV95-SINOS	0,00307	0,00327	0,00449	0,0143			
HV96-SINOS	0,00299	0,00264	0,00398	0,0219			
HV99-SINOS	0,00407	0,00452	0,00609	0,0123			
HV100-SINOS	0,0076	0,00585	0,0096	0,0206			
HV101-SINOS	0,01251	0,01016	0,01612	0,0297			
HV104-SINOS	0,00633	0,00637	0,00898	0,0158			
HV105-SINOS	0,00766	0,0035	0,00842	0,0118			
HV106-SINOS	0,01015	0,00762	0,0127	0,0245			
HV109-SINOS	0,00737	0,00513	0,00898	0,0151			
HV110-SINOS	0,00821	0,0042	0,00922	0,0159			
HV116-SINOS	0,00828	0,0061	0,01029	0,0144			
HV117-SINOS	0,07051	0,06754	0,09764	0,2328			
HV118-SINOS	0,01588	0,01609	0,02261	0,0421			
HV125-SINOS	0,02696	0,01952	0,03329	0,0578			

HV126-SINOS	0,00278	0,00255	0,00377	0,0174		
HV132-SINOS	0,00074	0,00061	0,00095	0,0019		
HV146-SINOS	0,00212	0,0021	0,00299	0,0055		
HV184-SINOS	0,00405	0,003	0,00504	0,012		
HV187-SINOS	0,00821	0,00707	0,01083	0,0213		
MR03	0	0	0	0		
FATOR DE ESCALA						
Nome	Fator de Escala Combinado Proj ao Terr	Convergência	Código			
HV90-SINOS	1,000411397	0°00'47,0318				
HV91-SINOS	1,000408347	0°00'54,7317				
HV95-SINOS	1,000410073	0°00'38,6279				
HV96-SINOS	1,000404121	0°00'45,4580				
HV99-SINOS	1,000406043	0°01'10,6427				
HV100-SINOS	1,000406753	0°03'02,8763				
HV101-SINOS	1,000404399	0°04'16,7073				
HV104-SINOS	1,000407083	0°00'56,1702				
HV105-SINOS	1,000411526	0°02'02,8153				
HV106-SINOS	1,00040586	0°03'11,4364				
HV109-SINOS	1,000399567	0°08'04,8677				
HV110-SINOS	1,000403033	0°08'08,2839				
HV116-SINOS	1,000401933	0°07'27,3601				
HV117-SINOS	1,000400951	0°07'22,1500				
HV118-SINOS	1,000398379	0°06'30,0114				
HV125-SINOS	1,000398951	0°06'43,9841				
HV126-SINOS	1,000401138	0°07'23,9208				
HV132-SINOS	1,000401063	0°04'18,3593				
HV146-SINOS	1,000398634	0°04'44,8851				
HV184-SINOS	1,000404945	0°04'07,6742				
HV187-SINOS	1,000406127	0°02'21,0348				
MR03	1,000399448	0°04'28,4433				
PRECISÃO						
Nome	dN (m)	dE (m)	dZ (m)	Precisão Horizontal (m)	Precisão Vertical (m)	
HV90-SINOS-MR03	-11910,5076	-11979,4071	-59,9915	0,0073	0,0145	
HV91-SINOS-MR03	-10249,2525	-11562,4127	-40,7472	0,007	0,0133	
HV95-SINOS-HV126-SINOS	-3689,004	-21969,97	-11,6088	0,0214	0,0832	
HV95-SINOS-MR03	-6680,616	-12440,5249	-51,3906	0,0045	0,0143	
HV96-SINOS-HV117-SINOS	-1641,8254	-21515,4724	24,5646	0,0342	0,1686	
HV96-SINOS-HV126-SINOS	-2982,0787	-21599,73	26,0733	0,0147	0,0713	
HV96-SINOS-MR03	-5973,7118	-12070,3718	-13,6139	0,004	0,0219	
HV99-SINOS-HV118-SINOS	-4437,1714	-17317,1806	-14,7727	0,0685	0,115	
HV99-SINOS-HV146-SINOS	-9377,6506	-11586,9552	-29,6345	0,0228	0,0427	
HV99-SINOS-MR03	-8857,5618	-10699,4743	-26,5361	0,0061	0,0123	
HV100-SINOS-HV125-SINOS	-5584,1529	-11967,8166	-19,7205	0,0093	0,017	
HV100-SINOS-MR03	-8767,7193	-4602,0899	-37,6608	0,0096	0,0206	
HV101-SINOS-MR03	-8981,7242	-589,8395	-30,2048	0,0161	0,0297	
HV104-SINOS-HV116-SINOS	-1594,1582	-21228,2699	12,8263	0,0276	0,0468	
HV104-SINOS-HV117-SINOS	-3078,8379	-20933,2913	4,2381	0,1733	0,2873	
HV104-SINOS-MR03	-7411,5944	-11487,3829	-32,7302	0,009	0,0158	
HV105-SINOS-HV110-SINOS	-102,4918	-19844,4282	-2,308	0,0156	0,0215	
HV105-SINOS-MR03	-7364,3316	-7868,5581	-63,7964	0,0084	0,0118	
HV106-SINOS-HV109-SINOS	1341,674	-15946,8818	5,9928	0,0111	0,0212	
HV106-SINOS-MR03	-7403,2856	-4142,2008	-32,7058	0,0127	0,0245	
HV109-SINOS-MR03	-8744,9664	11804,6588	-38,7042	0,009	0,0151	
HV110-SINOS-MR03	-7261,8439	11975,87	-61,4845	0,0092	0,0159	
HV116-SINOS-MR03	-5817,4224	9740,89	-45,5407	0,0103	0,0144	
HV117-SINOS-MR03	-4332,7866	9445,9717	-36,7797	0,0977	0,2328	
HV118-SINOS-MR03	-4420,3747	6617,6187	-13,7141	0,0226	0,0421	
HV125-SINOS-MR03	-3183,5528	7365,6765	-17,9011	0,0333	0,0578	
HV126-SINOS-MR03	-2991,6141	9529,326	-39,6322	0,0038	0,0174	
HV132-SINOS-MR03	-1855,1308	-536,6153	-9,0777	0,001	0,0019	
HV146-SINOS-MR03	520,0789	887,5003	3,0277	0,003	0,0055	
HV184-SINOS-MR03	-10233,5373	-1074,4754	-32,637	0,005	0,012	
HV187-SINOS-MR03	-8771,8913	-6875,2754	-30,532	0,0108	0,0213	
DISTÂNCIA E PDOP						
Nome	Distancia (m)	PDOP	HDOP	VDOP	Status	
HV90-SINOS-MR03	16899,7462	2,284	1,037	2,035	PostProcessed	
HV91-SINOS-MR03	15457,3972	2,438	1,121	2,165	PostProcessed	
HV95-SINOS-HV126-SINOS	22286,5793	4,041	0,965	3,924	PostProcessed	
HV95-SINOS-MR03	14126,6211	2,972	0,953	2,815	PostProcessed	
HV96-SINOS-HV117-SINOS	21586,7345	2,638	0,923	2,471	PostProcessed	
HV96-SINOS-HV126-SINOS	21813,4174	5,118	1,026	5,014	PostProcessed	
HV96-SINOS-MR03	13473,1256	4,21	1,002	4,089	PostProcessed	
HV99-SINOS-HV118-SINOS	17883,8126	1,773	0,87	1,545	PostProcessed	
HV99-SINOS-HV146-SINOS	14912,3303	2,044	0,977	1,796	PostProcessed	
HV99-SINOS-MR03	13895,7299	1,983	0,944	1,744	PostProcessed	
HV100-SINOS-HV125-SINOS	13211,8272	2,564	1,144	2,295	PostProcessed	
HV100-SINOS-MR03	9906,1903	2,542	1,143	2,27	PostProcessed	
HV101-SINOS-MR03	9004,7388	2,447	1,236	2,111	PostProcessed	
HV104-SINOS-HV116-SINOS	21296,6678	1,937	1,076	1,61	PostProcessed	
HV104-SINOS-HV117-SINOS	21167,0513	2,181	1,062	1,905	PostProcessed	
HV104-SINOS-MR03	13676,387	2,362	1,21	2,028	PostProcessed	
HV105-SINOS-HV110-SINOS	19852,783	3,676	2,034	3,061	PostProcessed	
HV105-SINOS-MR03	10781,7378	3,671	2,031	3,059	PostProcessed	
HV106-SINOS-HV109-SINOS	16009,6723	2,859	1,442	2,469	PostProcessed	
HV106-SINOS-MR03	8486,7837	2,784	1,417	2,396	PostProcessed	
HV109-SINOS-MR03	14696,8845	1,808	0,781	1,63	PostProcessed	

HV110-SINOS-MR03	14011,3203	2,143	1,099	1,84	PostProcessed		
HV116-SINOS-MR03	11350,4454	1,553	0,811	1,325	PostProcessed		
HV117-SINOS-MR03	10396,5029	2,072	0,784	1,918	PostProcessed		
HV118-SINOS-MR03	7961,363	1,577	0,666	1,43	PostProcessed		
HV125-SINOS-MR03	8027,4494	1,773	0,748	1,607	PostProcessed		
HV126-SINOS-MR03	9991,9606	3,022	0,803	2,914	PostProcessed		
HV132-SINOS-MR03	1931,9769	2,402	1,088	2,142	PostProcessed		
HV146-SINOS-MR03	1029,0737	1,781	0,712	1,633	PostProcessed		
HV184-SINOS-MR03	10293,9795	3,475	1,375	3,191	PostProcessed		
HV187-SINOS-MR03	11149,731	2,059	0,992	1,805	PostProcessed		
DURAÇÃO E INTERVALO							
Nome	Hora Início	Duração	Tipo antena Base	Alt Antena Base (m)	Tipo Antena Rover	Altura Antena Rover (m)	
HV90-SINOS-MR03	20/01/2016 19:53	00:29:50	Legant E	3	TPSHIPER SR	1,486	
HV91-SINOS-MR03	20/01/2016 19:13	00:29:40	Legant E	3	TPSHIPER SR	1,486	
HV95-SINOS-HV126-SINOS	20/01/2016 13:25	00:07:05	Legant E	3,5	HiPer+	1,47	
HV95-SINOS-MR03	20/01/2016 13:25	00:30:25	Legant E	3,5	TPSHIPER SR	1,486	
HV96-SINOS-HV117-SINOS	20/01/2016 12:55	00:03:20	Legant E	2,2	HiPer+	2,72	
HV96-SINOS-HV126-SINOS	20/01/2016 13:09	00:08:15	Legant E	2,2	HiPer+	1,47	
HV96-SINOS-MR03	20/01/2016 12:55	00:22:35	Legant E	2,2	TPSHIPER SR	1,486	
HV99-SINOS-HV118-SINOS	20/01/2016 18:30	00:03:45	Legant E	2,4	HiPer+	2	
HV99-SINOS-HV146-SINOS	20/01/2016 18:53	00:08:55	Legant E	2,4	HiPer+	2	
HV99-SINOS-MR03	20/01/2016 18:30	00:31:25	Legant E	2,4	TPSHIPER SR	1,486	
HV100-SINOS-HV125-SINOS	20/01/2016 17:45	00:19:45	Legant E	2,4	HiPer+	1,77	
HV100-SINOS-MR03	20/01/2016 17:39	00:33:35	Legant E	2,4	TPSHIPER SR	1,486	
HV101-SINOS-MR03	20/01/2016 15:36	00:22:40	Legant E	3	TPSHIPER SR	1,486	
HV104-SINOS-HV116-SINOS	20/01/2016 12:14	00:10:55	Legant E	3,5	HiPer+	2	
HV104-SINOS-HV117-SINOS	20/01/2016 12:35	00:01:35	Legant E	3,5	HiPer+	2,72	
HV104-SINOS-MR03	20/01/2016 12:14	00:21:45	Legant E	3,5	TPSHIPER SR	1,486	
HV105-SINOS-HV110-SINOS	20/01/2016 11:28	00:21:10	Legant E	2,1	HiPer+	1,72	
HV105-SINOS-MR03	20/01/2016 11:28	00:21:20	Legant E	2,1	TPSHIPER SR	1,486	
HV106-SINOS-HV109-SINOS	20/01/2016 10:54	00:19:15	Legant E	2	HiPer+	2	
HV106-SINOS-MR03	20/01/2016 10:53	00:20:40	Legant E	2	TPSHIPER SR	1,486	
HV109-SINOS-MR03	20/01/2016 10:54	00:24:10	HiPer+	2	TPSHIPER SR	1,486	
HV110-SINOS-MR03	20/01/2016 11:27	00:22:00	HiPer+	1,72	TPSHIPER SR	1,486	
HV116-SINOS-MR03	20/01/2016 12:06	00:19:15	HiPer+	2	TPSHIPER SR	1,486	
HV117-SINOS-MR03	20/01/2016 12:35	00:23:30	HiPer+	2,72	TPSHIPER SR	1,486	
HV118-SINOS-MR03	20/01/2016 18:14	00:20:10	HiPer+	2	TPSHIPER SR	1,486	
HV125-SINOS-MR03	20/01/2016 17:45	00:19:45	HiPer+	1,77	TPSHIPER SR	1,486	
HV126-SINOS-MR03	20/01/2016 13:09	00:23:30	HiPer+	1,47	TPSHIPER SR	1,486	
HV132-SINOS-MR03	20/01/2016 10:18	00:18:00	Legant E	2	TPSHIPER SR	1,486	
HV146-SINOS-MR03	20/01/2016 18:53	00:20:35	HiPer+	2	TPSHIPER SR	1,486	
HV184-SINOS-MR03	20/01/2016 16:11	00:30:20	Legant E	2	TPSHIPER SR	1,486	
HV187-SINOS-MR03	20/01/2016 16:54	00:30:35	Legant E	3	TPSHIPER SR	1,486	
PONTO DE CONTROLE							
Nome	Latitude	Longitude	Alt Elip (m)	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão u (m)	
MR03	29°44'11,416614S	51°09'01,202278W	12,0868	0	0	0	
PONTOS AJUSTADOS							
Nome	Latitude	Longitude	Alt Elip (m)	Malha Norte (m)	Malha Este (m)		
no data met							

Anexo 8 - Pontos de Apoio Bacia do Rio Sinos D

PROJETO						
Project name: Gravatai_SINOS 21 01 2016.ttp						
Project folder: G:\Dados\Jobs						
Creation time: 30/7/2013 13:17:07						
Created by:						
Comment:						
Linear unit: Meters						
Angular unit: DMS						
Projection: UTMSouth-Zone 22 : 54W to 48W						
Datum: SIRGAS2000						
Geoid:						
AJUSTAMENTO						
COORDENADAS UTM						
Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Código		
HV80-SINOS	6723339,234	504726,6084	55,0703			
HV81-SINOS	6723474,913	503083,508	82,7625			
HV82-SINOS	6723287,829	500209,3456	40,3651			
HV84-SINOS	6722222,889	504201,6055	46,8482			
HV86-SINOS	6720537,277	503714,6002	37,0488			
HV87-SINOS	6720603,761	500219,0676	28,3095			
HV88-SINOS	6724656,705	497265,8127	45,5416			
HV89-SINOS	6723504,606	497064,8083	56,198			
HV92-SINOS	6719188,975	500333,2493	48,228			
HV93-SINOS	6719507,565	502915,489	61,9635			
HV94-SINOS	6717835,918	501043,6933	19,5001			
HV102-SINOS	6719170,977	481943,3417	40,2103			
HV107-SINOS	6717644,837	485969,8975	39,8739			
HV108-SINOS	6717661,031	481041,2051	41,1862			
HV111-SINOS	6717957,368	479269,5395	53,5051			
HV115-SINOS	6716315,236	480868,7666	31,216			
HV124-SINOS	6713522,764	481434,6443	57,5676			
HV128-SINOS	6713196,069	480381,9689	55,5347			
HV129-SINOS	6711816,195	481581,4463	32,7633			
HV131-SINOS	6712292,435	484533,8587	42,4679			
HV137-A SINOS	6710535,418	480230,6567	29,9922			
HV185-SINOS	6721903,074	483763,0414	47,8593			
HV186-SINOS	6720577,063	482880,7753	39,1817			
HV188-SINOS	6722033,942	499704,869	30,5104			
MR03	6710402,027	485462,4774	12,0868			
COORDENADAS GEOGRÁFICAS						
Nome	Latitude	Longitude	Alt Elip (m)	Código		
HV80-SINOS	29°37'11,359420S	50°57'04,240995W	55,0703			
HV81-SINOS	29°37'06,969697S	50°58'05,341084W	82,7625			
HV82-SINOS	29°37'13,061858S	50°59'52,215442W	40,3651			
HV84-SINOS	29°37'47,636719S	50°57'23,747687W	46,8482			
HV86-SINOS	29°38'42,408472S	50°57'41,838019W	37,0488			
HV87-SINOS	29°38'40,268326S	50°59'51,851980W	28,3095			
HV88-SINOS	29°36'28,575635S	51°01'41,658876W	45,5416			
HV89-SINOS	29°37'06,006274S	51°01'49,143550W	56,198			
HV92-SINOS	29°39'26,235068S	50°59'47,603532W	48,228			
HV93-SINOS	29°39'15,871831S	50°58'11,550443W	61,9635			
HV94-SINOS	29°40'10,194804S	50°59'21,171188W	19,5001			
HV102-SINOS	29°39'26,347345S	51°11'11,685338W	40,2103			
HV107-SINOS	29°40'16,119150S	51°08'41,974005W	39,8739			
HV108-SINOS	29°40'15,357180S	51°11'45,338602W	41,1862			
HV111-SINOS	29°40'05,627184S	51°12'51,230467W	53,5051			
HV115-SINOS	29°40'59,072503S	51°11'51,839482W	31,216			
HV124-SINOS	29°42'29,830628S	51°11'30,956695W	57,5676			
HV128-SINOS	29°42'40,386527S	51°12'10,155809W	55,5347			
HV129-SINOS	29°43'25,284643S	51°11'25,597764W	32,7633			
HV131-SINOS	29°43'09,957112S	51°09'35,675346W	42,4679			
HV137-A SINOS	29°44'06,821774S	51°12'15,962594W	29,9922			
HV185-SINOS	29°37'57,671401S	51°10'03,847853W	47,8593			
HV186-SINOS	29°38'40,711185S	51°10'36,734230W	39,1817			
HV188-SINOS	29°37'53,801136S	51°00'10,975729W	30,5104			
MR03	29°44'11,416614S	51°09'01,202278W	12,0868			
DESVIO PADRÃO						
Nome	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão Hz (m)	Desv Padrão u (m)	Código	
HV80-SINOS	0,00614	0,0052	0,00804	0,0155		
HV81-SINOS	0,0057	0,0065	0,00865	0,0187		
HV82-SINOS	0,01069	0,0076	0,01312	0,0341		
HV84-SINOS	0,0059	0,00463	0,00751	0,0142		
HV86-SINOS	0,00742	0,00676	0,01004	0,0201		
HV87-SINOS	0,00364	0,00413	0,00551	0,0167		
HV88-SINOS	0,01043	0,00751	0,01285	0,0279		
HV89-SINOS	0,01046	0,00653	0,01233	0,02		
HV92-SINOS	0,00468	0,00492	0,00679	0,015		
HV93-SINOS	0,01217	0,00812	0,01463	0,0334		
HV94-SINOS	0,00648	0,00584	0,00872	0,0167		
HV102-SINOS	0,00843	0,00702	0,01097	0,0195		
HV107-SINOS	0,00361	0,00361	0,00511	0,01		
HV108-SINOS	0,01158	0,01023	0,01545	0,0552		
HV111-SINOS	0,02207	0,01818	0,02859	0,0448		

HV115-SINOS	0,02162	0,01892	0,02873	0,0526		
HV124-SINOS	0,01386	0,01082	0,01759	0,0759		
HV128-SINOS	0,00297	0,0023	0,00375	0,0082		
HV129-SINOS	0,00705	0,00478	0,00852	0,0124		
HV131-SINOS	0,00205	0,00229	0,00308	0,0065		
HV137A-SINOS	0,00327	0,00191	0,00379	0,0068		
HV185-SINOS	0,01213	0,00676	0,01389	0,0247		
HV186-SINOS	0,00708	0,00488	0,0086	0,0156		
HV188-SINOS	0,0069	0,00532	0,00871	0,0154		
MR03	0	0	0	0		
FATOR DE ESCALA						
Nome	Fator de Escala Combinado Proj ao Terr	Convergência	Código			
HV80-SINOS	1,000408532	-0°01'26,8676				
HV81-SINOS	1,000413038	-0°00'56,6672				
HV82-SINOS	1,000406498	-0°00'03,8475				
HV84-SINOS	1,000407298	-0°01'17,2505				
HV86-SINOS	1,000405807	-0°01'08,3386				
HV87-SINOS	1,000404605	-0°00'04,0302				
HV88-SINOS	1,000407219	0°00'50,2258				
HV89-SINOS	1,000408878	0°00'53,9409				
HV92-SINOS	1,000407732	-0°00'06,1339				
HV93-SINOS	1,000409785	-0°00'53,6573				
HV94-SINOS	1,000403209	-0°00'19,2201				
HV102-SINOS	1,000402448	0°05'32,3585				
HV107-SINOS	1,000403991	0°04'18,3886				
HV108-SINOS	1,000402189	0°05'49,1563				
HV111-SINOS	1,000403255	0°06'21,7427				
HV115-SINOS	1,000400542	0°05'52,5055				
HV124-SINOS	1,000404944	0°05'42,4283				
HV128-SINOS	1,000404128	0°06'01,8874				
HV129-SINOS	1,000401116	0°05'39,9325				
HV131-SINOS	1,000403875	0°04'45,3935				
HV137-A SINOS	1,000400044	0°06'05,0332				
HV185-SINOS	1,00040442	0°04'58,5659				
HV186-SINOS	1,000402694	0°05'14,9417				
HV188-SINOS	1,00040495	0°00'05,4266				
MR03	1,000399448	0°04'28,4433				
PRECISÃO						
Nome	dN (m)	dE (m)	dZ (m)	Precisão Horizontal (m)	Precisão Vertical (m)	
HV80-SINOS-HV185-SINOS	-1436,1595	-20963,567	-7,211	0,0271	0,0552	
HV80-SINOS-HV186-SINOS	-2762,1709	-21845,8331	-15,8886	0,021	0,0384	
HV80-SINOS-MR03	-12937,2064	-19264,131	-42,9835	0,008	0,0155	
HV81-SINOS-HV107-SINOS	-5830,0765	-17113,6105	-42,8887	0,0172	0,0435	
HV81-SINOS-MR03	-13072,8861	-17621,0306	-70,6757	0,0087	0,0187	
HV82-SINOS-HV124-SINOS	-9765,0643	-18774,7013	17,2026	0,0153	0,0628	
HV82-SINOS-HV128-SINOS	-10091,7601	-19827,3767	15,1696	0,0218	0,0454	
HV82-SINOS-MR03	-12885,8017	-14746,8683	-28,2783	0,0131	0,0341	
HV84-SINOS-HV102-SINOS	-3051,9125	-22258,2638	-6,6379	0,0181	0,0331	
HV84-SINOS-HV185-SINOS	-319,8652	-20438,6334	0,6783	0,0423	0,0749	
HV84-SINOS-MR03	-11820,862	-18739,1281	-34,7614	0,0075	0,0142	
HV86-SINOS-HV111-SINOS	-2579,9091	-24445,0608	16,4563	0,1059	0,0597	
HV86-SINOS-MR03	-10135,2499	-18252,1229	-24,962	0,01	0,0201	
HV87-SINOS-HV124-SINOS	-7080,9811	-18784,3866	29,2866	0,0333	0,1518	
HV87-SINOS-HV131-SINOS	-8311,5122	-15685,0402	13,9547	0,015	0,0382	
HV87-SINOS-MR03	-10201,7334	-14756,5902	-16,2227	0,0055	0,0167	
HV88-SINOS-HV137_A	-14121,2876	-17035,156	-15,5494	0,0203	0,0414	
HV88-SINOS-MR03	-14254,6569	-11803,3527	-33,5187	0,0129	0,0279	
HV89-SINOS-HV129-SINOS	-11688,3858	-15484,91	-27,2938	0,1068	0,1592	
HV89-SINOS-HV137_A	-12969,188	-16834,1516	-26,2058	0,0592	0,1016	
HV89-SINOS-MR03	-13102,1843	-11603,6658	-45,8738	0,0123	0,02	
HV92-SINOS-HV131-SINOS	-6896,5403	-15799,3906	-5,7601	0,2296	0,248	
HV92-SINOS-MR03	-8786,9478	-14870,7719	-36,1412	0,0068	0,015	
HV93-SINOS-HV108-SINOS	-1846,5342	-21874,2839	-20,7772	0,0101	0,0381	
HV93-SINOS-MR03	-9105,5376	-17453,0116	-49,8767	0,0146	0,0334	
HV94-SINOS-HV115-SINOS	-1520,6821	-20174,9267	11,7159	0,0182	0,0369	
HV94-SINOS-MR03	-7433,8912	-15581,216	-7,4133	0,0087	0,0167	
HV102-SINOS-MR03	-8768,8983	3519,1185	-28,0706	0,011	0,0195	
HV107-SINOS-MR03	-7242,7865	-507,4379	-27,7351	0,0051	0,0101	
HV108-SINOS-MR03	-7258,8887	4421,4034	-29,1825	0,0154	0,0552	
HV111-SINOS-MR03	-7555,4392	6192,9615	-41,4101	0,0286	0,0448	
HV115-SINOS-MR03	-5913,1881	4593,7048	-19,1067	0,0287	0,0526	
HV124-SINOS-MR03	-3120,7459	4027,8025	-45,6971	0,0176	0,0759	
HV128-SINOS-HV188-SINOS	8837,7989	19322,8484	-24,9034	0,1502	0,254	
HV128-SINOS-MR03	-2794,1155	5080,4571	-43,3267	0,0038	0,0082	
HV129-SINOS-HV188-SINOS	10217,7467	18123,4227	-2,2529	0,0706	0,1017	
HV129-SINOS-MR03	-1414,2013	3881,0197	-20,6741	0,0085	0,0124	
HV131-SINOS-MR03	-1890,1987	928,4328	-30,1987	0,0031	0,0065	
HV137_A-MR03	-133,3904	5231,8207	-17,9054	0,0038	0,0068	
HV185-SINOS-MR03	-11500,9112	1699,4973	-35,5106	0,0139	0,0247	
HV186-SINOS-MR03	-10174,9143	2581,7674	-26,8592	0,0086	0,0156	
HV188-SINOS-MR03	-11631,9291	-14242,3911	-18,4146	0,0087	0,0154	
DISTÂNCIA E PDOP						
Nome	Distância (m)	PDOP	HDOP	VDOP	Status	
HV80-SINOS-HV185-SINOS	21021,2548	2,447	1,126	2,172	PostProcessed	
HV80-SINOS-HV186-SINOS	22028,7117	2,617	1,264	2,291	PostProcessed	
HV80-SINOS-MR03	23214,5492	2,073	1,005	1,813	PostProcessed	
HV81-SINOS-HV107-SINOS	18086,862	3,175	1,306	2,894	PostProcessed	
HV81-SINOS-MR03	21949,8842	2,862	1,214	2,591	PostProcessed	
HV82-SINOS-HV124-SINOS	21170,9682	4,588	1,02	4,473	PostProcessed	

HV82-SINOS-HV128-SINOS	22256,9164	2,458	0,942	2,27	PostProcessed	
HV82-SINOS-MR03	19591,4268	3,294	0,969	3,148	PostProcessed	
HV84-SINOS-HV102-SINOS	22475,6271	1,958	0,943	1,716	PostProcessed	
HV84-SINOS-HV185-SINOS	20449,4404	2,602	1,15	2,334	PostProcessed	
HV84-SINOS-MR03	22164,9549	2,291	1,056	2,033	PostProcessed	
HV86-SINOS-HV111-SINOS	24590,7883	2,461	1,131	2,186	PostProcessed	
HV86-SINOS-MR03	20885,7646	2,58	1,163	2,303	PostProcessed	
HV87-SINOS-HV124-SINOS	20082,8505	4,815	0,996	4,711	PostProcessed	
HV87-SINOS-HV131-SINOS	17758,2889	2,406	0,951	2,21	PostProcessed	
HV87-SINOS-MR03	17946,9072	3,267	0,959	3,123	PostProcessed	
HV88-SINOS-HV137_A	22136,0105	3,804	1,906	3,292	PostProcessed	
HV88-SINOS-MR03	18514,6377	3,395	1,697	2,941	PostProcessed	
HV89_SINOS-HV129-SINOS	19408,9243	3,149	1,788	2,591	PostProcessed	
HV89_SINOS-HV137_A	21259,2254	3,882	2,116	3,254	PostProcessed	
HV89_SINOS-MR03	17508,9104	3,771	2,088	3,14	PostProcessed	
HV92-SINOS-HV131-SINOS	17245,9969	2,296	1,098	2,017	PostProcessed	
HV92-SINOS-MR03	17279,8314	2,536	1,293	2,182	PostProcessed	
HV93-SINOS-HV108-SINOS	21961,0164	3,969	1,441	3,698	PostProcessed	
HV93-SINOS-MR03	19693,5204	3,148	1,327	2,854	PostProcessed	
HV94-SINOS-HV115-SINOS	20240,2986	2,956	1,502	2,546	PostProcessed	
HV94-SINOS-MR03	17270,6823	2,896	1,492	2,482	PostProcessed	
HV102-SINOS-MR03	9452,5212	1,416	0,688	1,237	PostProcessed	
HV107-SINOS-MR03	7263,51	1,673	0,72	1,511	PostProcessed	
HV108-SINOS-MR03	8502,8843	2,346	0,977	2,133	PostProcessed	
HV111-SINOS-MR03	9773,217	1,597	0,784	1,391	PostProcessed	
HV115-SINOS-MR03	7490,8708	1,867	1,003	1,574	PostProcessed	
HV124-SINOS-MR03	5097,5704	2,435	0,807	2,297	PostProcessed	
HV128-SINOS-HV188-SINOS	21256,6558	1,921	0,917	1,688	PostProcessed	
HV128-SINOS-MR03	5800,6055	1,773	0,784	1,59	PostProcessed	
HV129-SINOS-HV188-SINOS	20813,6971	1,831	1,084	1,475	PostProcessed	
HV129-SINOS-MR03	4132,3564	1,625	0,845	1,388	PostProcessed	
HV131-SINOS-MR03	2106,968	1,575	0,77	1,374	PostProcessed	
HV137_A-MR03	5235,6437	1,798	0,86	1,578	PostProcessed	
HV185-SINOS-MR03	11630,5269	1,709	0,728	1,546	PostProcessed	
HV186-SINOS-MR03	10501,5961	1,995	0,817	1,82	PostProcessed	
HV188-SINOS-MR03	18396,1932	1,87	1,009	1,575	PostProcessed	
DURAÇÃO E INTERVALO						
Nome	Hora Início	Duração	Tipo antena Base	Alt Antena Base (m)	Tipo Antena Rover	Altura Antena Rover (m)
HV80-SINOS-HV185-SINOS	21/01/2016 17:57	00:09:30	Legant E	3,5	HiPer+	2
HV80-SINOS-HV186-SINOS	21/01/2016 18:23	00:14:00	Legant E	3,5	HiPer+	1,8
HV80-SINOS-MR03	21/01/2016 17:57	00:40:05	Legant E	3,5	HiPer+	1,51
HV81-SINOS-HV107-SINOS	21/01/2016 19:05	00:22:15	Legant E	2	HiPer+	1,5
HV81-SINOS-MR03	21/01/2016 18:48	00:39:05	Legant E	2	HiPer+	1,51
HV82-SINOS-HV124-SINOS	21/01/2016 12:59	00:09:05	Legant E	2,4	HiPer+	2,3
HV82-SINOS-HV128-SINOS	21/01/2016 12:38	00:12:15	Legant E	2,4	HiPer+	1,22
HV82-SINOS-MR03	21/01/2016 12:38	00:30:30	Legant E	2,4	HiPer+	1,51
HV84-SINOS-HV102-SINOS	21/01/2016 17:08	00:16:35	Legant E	3	HiPer+	1,5
HV84-SINOS-HV185-SINOS	21/01/2016 17:42	00:06:35	Legant E	3	HiPer+	2
HV84-SINOS-MR03	21/01/2016 17:08	00:41:30	Legant E	3	HiPer+	1,51
HV86-SINOS-HV111-SINOS	21/01/2016 16:29	00:20:35	Legant E	2	HiPer+	2,85
HV86-SINOS-MR03	21/01/2016 16:20	00:40:35	Legant E	2	HiPer+	1,51
HV87-SINOS-HV124-SINOS	21/01/2016 13:17	00:03:50	Legant E	2	HiPer+	2,3
HV87-SINOS-HV131-SINOS	21/01/2016 13:38	00:12:20	Legant E	2	HiPer+	2,5
HV87-SINOS-MR03	21/01/2016 13:17	00:32:40	Legant E	2	HiPer+	1,51
HV88-SINOS-HV137_A	21/01/2016 11:03	00:13:20	Legant E	2	HiPer+	2,1
HV88-SINOS-MR03	21/01/2016 10:55	00:21:15	Legant E	2	HiPer+	1,51
HV89_SINOS-HV129-SINOS	21/01/2016 11:46	00:02:45	Legant E	2	HiPer+	2
HV89_SINOS-HV137_A	21/01/2016 11:27	00:04:55	Legant E	2	HiPer+	2,1
HV89_SINOS-MR03	21/01/2016 11:27	00:21:20	Legant E	2	HiPer+	1,51
HV92-SINOS-HV131-SINOS	21/01/2016 13:56	00:05:50	Legant E	2,4	HiPer+	2,5
HV92-SINOS-MR03	21/01/2016 13:56	00:32:50	Legant E	2,4	HiPer+	1,51
HV93-SINOS-HV108-SINOS	21/01/2016 15:59	00:15:35	Legant E	3	HiPer+	3,4
HV93-SINOS-MR03	21/01/2016 15:46	00:29:30	Legant E	3	HiPer+	1,51
HV94-SINOS-HV115-SINOS	21/01/2016 15:14	00:13:50	Legant E	2	HiPer+	1,5
HV94-SINOS-MR03	21/01/2016 14:58	00:30:00	Legant E	2	HiPer+	1,51
HV102-SINOS-MR03	21/01/2016 17:02	00:22:00	HiPer+	1,5	HiPer+	1,51
HV107-SINOS-MR03	21/01/2016 19:05	00:25:25	HiPer+	1,5	HiPer+	1,51
HV108-SINOS-MR03	21/01/2016 15:59	00:20:50	HiPer+	3,4	HiPer+	1,51
HV111-SINOS-MR03	21/01/2016 16:29	00:20:35	HiPer+	2,85	HiPer+	1,51
HV115-SINOS-MR03	21/01/2016 15:14	00:21:35	HiPer+	1,5	HiPer+	1,51
HV124-SINOS-MR03	21/01/2016 12:59	00:21:40	HiPer+	2,3	HiPer+	1,51
HV128-SINOS-HV188-SINOS	21/01/2016 12:29	00:01:50	HiPer+	1,22	Legant E	2
HV128-SINOS-MR03	21/01/2016 12:29	00:21:20	HiPer+	1,22	HiPer+	1,51
HV129-SINOS-HV188-SINOS	21/01/2016 12:01	00:04:40	HiPer+	2	Legant E	2
HV129-SINOS-MR03	21/01/2016 11:46	00:19:45	HiPer+	2	HiPer+	1,51
HV131-SINOS-MR03	21/01/2016 13:38	00:24:40	HiPer+	2,5	HiPer+	1,51
HV137_A-MR03	21/01/2016 11:03	00:29:05	HiPer+	2,1	HiPer+	1,51
HV185-SINOS-MR03	21/01/2016 17:42	00:24:20	HiPer+	2	HiPer+	1,51
HV186-SINOS-MR03	21/01/2016 18:23	00:17:00	HiPer+	1,8	HiPer+	1,51
HV188-SINOS-MR03	21/01/2016 12:01	00:29:50	Legant E	2	HiPer+	1,51
PONTO DE CONTROLE						
Nome	Latitude	Longitude	Alt Elip (m)	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão u (m)
MR03	29°44'11,416614S	51°09'01,202278W	12,0868	0	0	0
PONTOS AJUSTADOS						
Nome	Latitude	Longitude	Alt Elip (m)	Malha Norte (m)	Malha Este (m)	
no data met						

Anexo 8 - Pontos de Apoio Bacia do Rio Sinos E

PROJETO						
Project name: Gravatai_Sinos 24 01 2016.ttp						
Project folder: G:\Dados\Jobs						
Creation time: 30/7/2013 13:17:07						
Created by:						
Comment:						
Linear unit: Meters						
Angular unit: DMS						
Projection: UTMSouth-Zone_22 : 54W to 48W						
Datum: SIRGAS2000						
Geoid:						
AJUSTAMENTO						
COORDENADAS UTM						
Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Código		
BASE-02	6721948,241	500329,3889	41,9595			
HV-28-SINOS	6719544,584	521578,2214	40,8161			
MR04	6719541,211	521562,8713	41,0656			
COORDENADAS GEOGRÁFICAS						
Nome	Latitude	Longitude	Alt Elip (m)	Código		
BASE-02	29°37'56,585555S	50°59'47,750149W	41,9595			
HV-28-SINOS	29°39'14,006490S	50°46'37,344391W	40,8161			
MR04	29°39'14,117022S	50°46'37,915131W	41,0656			
DESVIO PADRÃO						
Nome	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão Hz (m)	Desv Padrão u (m)	Código	
BASE-02	0	0	0	0		
HV-28A	0,00559	0,00523	0,00765	0,0166		
MR04	0,00655	0,00573	0,0087	0,0178		
FATOR DE ESCALA						
Nome	Fator de Escala Combinado Proj ao Terr	Convergência	Código			
BASE-02	1,000406747	-0°00'06,0567				
HV-28-SINOS	1,00040082	-0°06'37,1230				
MR04	1,000400867	-0°06'36,8410				
PRECISÃO						
Nome	dN (m)	dE (m)	dZ (m)	Precisão Horizontal (m)	Precisão Vertical (m)	
BASE-02-HV-28A	-2403,6573	21248,8325	-1,1434	0,0077	0,0166	
BASE-02-MR04	-2407,0326	21233,4782	-0,9034	0,0087	0,0178	
HV-28A-MR04	-3,3725	-15,3501	0,2495	0,0006	0,0013	
DISTÂNCIA E PDOP						
Nome	Distancia (m)	PDOP	HDOP	VDOP	Status	
BASE-02-HV-28A	21392,9949	2,818	1,22	2,541	PostProcessed	
BASE-02-MR04	21378,1123	1,85	0,725	1,702	PostProcessed	
HV-28A-MR04	15,7245	2,725	1,169	2,462	PostProcessed	
DURAÇÃO E INTERVALO						
Nome	Hora Início	Duração	Tipo antena Base	Alt Antena Base (m)	Tipo Antena Rover	Altura Antena Rover (m)
BASE-02-HV-28A	24/01/2016 18:19	00:49:45	TPSHIPER SR	1,604	Legant E	0
BASE-02-MR04	24/01/2016 18:04	01:00:15	TPSHIPER SR	1,604	HiPer+	1,5
HV-28A-MR04	24/01/2016 18:19	00:45:35	Legant E	0	HiPer+	1,5
PONTO DE CONTROLE						
Nome	Latitude	Longitude	Alt Elip (m)	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão u (m)
BASE-02	29°37'56,585555S	50°59'47,750149W	41,9595	0	0	0
PONTOS AJUSTADOS						
Nome	Latitude	Longitude	Alt Elip (m)	Malha Norte (m)	Malha Este (m)	
no data met						

Anexo 8 - Pontos de Apoio Bacia do Rio Sinos F

PROJETO					
Project name: Gravataj_Sinos 25 01 2016 Sem processar.ttp					
Project folder: G:\Dados\Jobs					
Creation time: 30/7/2013 13:17:07					
Created by:					
Comment:					
Linear unit: Meters					
Angular unit: DMS					
Projection: UTMSouth-Zone_22 : 54W to 48W					
Datum: SIRGAS2000					
Geoid:					
AJUSTAMENTO					
COORDENADAS UTM					
Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Código	
HV10-SINOS	6722374,173	543405,5838	240,8887		
HV11-SINOS	6722527,354	542257,8147	63,0606		
HV12-SINOS	6720719,691	540836,3639	52,4194		
HV13-SINOS	6720209,519	541821,8873	55,1054		
HV14-SINOS	6719905,263	543007,471	47,499		
HV15-SINOS	6722822,474	549538,8577	70,184		
HV16-SINOS	6721867,223	548783,1897	65,3371		
HV17-SINOS	6721011,403	554261,1453	227,8889		
HV18-SINOS	6719688,966	553323,5125	132,6886		
HV46-SINOS	6731968,634	522250,0464	48,9268		
HV47-SINOS	6732074,429	521225,7906	46,9398		
HV48-SINOS	6734838,083	518987,6344	117,6996		
HV49-SINOS	6735171,648	519810,5445	87,9728		
HV50-SINOS	6735098,566	520973,6966	63,0549		
HV51-SINOS	6735367,145	522406,443	83,9933		
HV52-SINOS	6739015,145	522355,4196	78,7401		
HV55-SINOS	6734251,496	523719,9905	141,539		
HV56-SINOS	6737781,764	520845,6242	70,8245		
HV57-SINOS	6738161,475	519325,5405	87,3196		
HV58-SINOS	6738650,013	517885,0591	92,7834		
HV59-SINOS	6739932,557	523338,7855	78,099		
POAL	6673004,053	488457,5447	76,745		
COORDENADAS GEOGRÁFICAS					
Nome	Latitude	Longitude	Alt Elip (m)	Código	
HV10-SINOS	29°37'40,019015S	50°33'05,844212W	240,8887		
HV11-SINOS	29°37'35,184620S	50°33'48,547566W	63,0606		
HV12-SINOS	29°38'34,085691S	50°34'41,161463W	52,4194		
HV13-SINOS	29°38'50,542861S	50°34'04,436685W	55,1054		
HV14-SINOS	29° 39' 00,28220S	50° 33' 20,29659W	47,499		
HV15-SINOS	29°37'24,628718S	50°29'17,842290W	70,184		
HV16-SINOS	29°37'55,771575S	50°29'45,787278W	65,3371		
HV17-SINOS	29°38'22,758753S	50°26'21,919665W	227,8889		
HV18-SINOS	29°39'05,869287S	50°26'56,556807W	132,6886		
HV46-SINOS	29°32'30,302518S	50°46'13,269228W	48,9268		
HV47-SINOS	29°32'26,929405S	50°46'51,334022W	46,9398		
HV48-SINOS	29°30'57,266145S	50°48'14,667640W	117,6996		
HV49-SINOS	29°30'46,382343S	50°47'44,120992W	87,9728		
HV50-SINOS	29°30'48,688457S	50°47'00,909945W	63,0549		
HV51-SINOS	29°30'39,873435S	50°46'07,710487W	83,9933		
HV52-SINOS	29° 28' 41,34934S	50° 46' 09,87301W	78,7401		
HV55-SINOS	29° 31' 16,03343S	50° 45' 18,83047W	141,5986		
HV56-SINOS	29°29'21,516869S	50°47'05,851513W	70,8245		
HV57-SINOS	29°29'09,267654S	50°48'02,327051W	87,3196		
HV58-SINOS	29° 28' 53,47175S	50° 48' 55,84926W	92,7834		
HV59-SINOS	29°28'11,477144S	50°45'33,428222W	78,099		
POAL	30°04'26,552800S	51°07'11,153200W	76,745		
DESVIO PADRÃO					
Nome	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão Hz (m)	Desv Padrão u (m)	Código
HV10-SINOS	0,09417	0,15386	0,18039	0,1712	
HV11-SINOS	0,22598	0,39112	0,45171	0,4594	
HV12-SINOS	0,01876	0,0122	0,02238	0,0526	
HV13-SINOS	0,04428	0,09145	0,10161	0,0728	
HV14-SINOS	0,03532	0,02659	0,04421	0,0396	
HV15-SINOS	0,04024	0,08519	0,09421	0,0606	
HV16-SINOS	0,07676	0,1313	0,15209	0,1035	
HV17-SINOS	0,00981	0,00799	0,01265	0,0412	
HV18-SINOS	0,01806	0,03972	0,04363	0,0354	
HV46-SINOS	0,03059	0,06514	0,07197	0,0416	
HV47-SINOS	0,06204	0,12395	0,13861	0,1269	
HV48-SINOS	0,01367	0,01284	0,01875	0,0359	
HV49-SINOS	0,03911	0,04059	0,05637	0,0549	
HV50-SINOS	0,0445	0,09294	0,10304	0,0654	
HV51-SINOS	0,05231	0,10349	0,11596	0,1292	
HV52-SINOS	0,0307	0,08294	0,08843	0,0375	
HV55-SINOS	0,05643	0,11431	0,12748	0,0884	
HV56-SINOS	0,01598	0,00976	0,01873	0,0361	
HV57-SINOS	0,01546	0,01254	0,0199	0,0353	
HV58-SINOS	0,01437	0,07241	0,07382	0,0658	
HV59-SINOS	0,01433	0,01271	0,01916	0,0369	
POAL	0	0	0	0	

FATOR DE ESCALA						
Nome	Fator de Escala Combinado Proj ao Terr	Convergência	Código			
HV10-SINOS	1,000414721	-0°13'17,9921				
HV11-SINOS	1,000388012	-0°12'56,8481				
HV12-SINOS	1,0003878	-0°12'31,2147				
HV13-SINOS	1,000387216	-0°12'49,4871				
HV14-SINOS	1,000384793	-0°13'11,3842				
HV15-SINOS	1,000380878	-0°15'10,5945				
HV16-SINOS	1,000381034	-0°14'57,0186				
HV17-SINOS	1,000399588	-0°16'38,0530				
HV18-SINOS	1,000385885	-0°16'21,2825				
HV46-SINOS	1,00040173	-0°06'47,6276				
HV47-SINOS	1,000401967	-0°06'28,8480				
HV48-SINOS	1,00041419	-0°05'47,4937				
HV49-SINOS	1,000409128	-0°06'02,5094				
HV50-SINOS	1,000404629	-0°06'23,8038				
HV51-SINOS	1,000407151	-0°06'49,9807				
HV52-SINOS	1,000406359	-0°06'48,5022				
HV55-SINOS	1,000415447	-0°07'14,1918				
HV56-SINOS	1,000405915	-0°06'21,0846				
HV57-SINOS	1,000409259	-0°05'53,2465				
HV58-SINOS	1,000410818	-0°05'26,8605				
HV59-SINOS	1,000405697	-0°07'06,3254				
POAL	1,000410566	0°03'36,0592				
PRECISÃO						
Nome	dN (m)	dE (m)	dZ (m)	Precisão Horizontal (m)	Precisão Vertical (m)	
HV10-SINOS-POAL	-49370,1197	-54948,0391	-164,1437	0,1801	0,1715	
HV11-SINOS-POAL	-49523,3002	-53800,2701	13,6844	0,4517	0,4595	
HV12-SINOS-POAL	-47715,6381	-52378,8192	24,3256	0,0223	0,0527	
HV13-SINOS-POAL	-47205,4661	-53364,3426	21,6396	0,1017	0,0727	
HV14-SINOS-POAL	-46901,1181	-54549,7155	29,163	0,0441	0,0397	
HV15-SINOS-POAL	-49818,4207	-61081,313	6,561	0,0943	0,0605	
HV16-SINOS-POAL	-48863,1701	-60325,645	11,4079	0,152	0,1036	
HV17-SINOS-POAL	-48007,3492	-65803,6006	-151,1439	0,0126	0,0412	
HV18-SINOS-POAL	-46684,9132	-64865,9679	-55,9436	0,0437	0,0354	
HV46-SINOS-POAL	-58964,5803	-33792,5018	27,8182	0,0719	0,0417	
HV47-SINOS-POAL	-59070,3759	-32768,2459	29,8052	0,1385	0,127	
HV48-SINOS-POAL	-61834,0298	-30530,0897	-40,9546	0,0188	0,0358	
HV49-SINOS-POAL	-62167,5946	-31352,9998	-11,2278	0,0562	0,055	
HV50-SINOS-POAL	-62094,5129	-32516,1519	13,6901	0,103	0,0654	
HV51-SINOS-POAL	-62363,0647	-33948,865	-7,2594	0,1161	0,1291	
HV52-SINOS-POAL	-66011,0854	-33897,9836	-2,0343	0,0884	0,0374	
HV55-SINOS-POAL	-61247,5092	-35262,3599	-64,8536	0,1275	0,0883	
HV56-SINOS-POAL	-64777,711	-32388,0796	5,9205	0,0188	0,0361	
HV57-SINOS-POAL	-65157,4213	-30867,9958	-10,5746	0,0199	0,0353	
HV58-SINOS-POAL	-65646,0041	-29427,6598	-16,2834	0,0737	0,0659	
HV59-SINOS-POAL	-66928,5035	-34881,2409	-1,3539	0,0192	0,0369	
DISTÂNCIA E PDOP						
Nome	Distancia (m)	PDOP	HDOP	VDOP	Status	
HV10-SINOS-POAL	73900,1596	1,885	0,904	1,654	PostProcessed	
HV11-SINOS-POAL	73152,5961	1,404	0,646	1,246	PostProcessed	
HV12-SINOS-POAL	70882,5588	1,724	0,743	1,556	PostProcessed	
HV13-SINOS-POAL	71275,2869	1,781	0,718	1,629	PostProcessed	
HV14-SINOS-POAL	71968,831	1,814	0,791	1,632	PostProcessed	
HV15-SINOS-POAL	78852,6221	2,028	0,945	1,794	PostProcessed	
HV16-SINOS-POAL	77663,2496	1,719	0,847	1,496	PostProcessed	
HV17-SINOS-POAL	81487,7067	2,054	0,789	1,896	PostProcessed	
HV18-SINOS-POAL	79951,1901	1,611	0,845	1,372	PostProcessed	
HV46-SINOS-POAL	67988,8674	2,354	1,083	2,09	PostProcessed	
HV47-SINOS-POAL	67577,7619	2,517	1,127	2,25	PostProcessed	
HV48-SINOS-POAL	68988,6231	1,939	0,929	1,701	PostProcessed	
HV49-SINOS-POAL	69654,6225	2,52	1,14	2,248	PostProcessed	
HV50-SINOS-POAL	70121,3699	1,96	0,951	1,714	PostProcessed	
HV51-SINOS-POAL	71033,6015	2,88	1,475	2,474	PostProcessed	
HV52-SINOS-POAL	74236,1082	4,225	1,021	4,1	PostProcessed	
HV55-SINOS-POAL	70702,1679	3,508	1,4	3,217	PostProcessed	
HV56-SINOS-POAL	72452,6681	2,1	0,944	1,877	PostProcessed	
HV57-SINOS-POAL	72128,7065	2,575	1,305	2,22	PostProcessed	
HV58-SINOS-POAL	71969,4419	3,051	1,747	2,501	PostProcessed	
HV59-SINOS-POAL	75503,2308	2,365	1,266	1,998	PostProcessed	
DURAÇÃO E INTERVALO						
Nome	Hora Início	Duração	Tipo antena Base	Alt Antena Base (m)	Tipo Antena Rover	Altura Antena Rover (m)
HV10-SINOS-POAL	25/01/2016 19:59	00:25:55	TPSHIPER SR	3	TRM55971.00	0,0075
HV11-SINOS-POAL	25/01/2016 19:17	00:23:00	TPSHIPER SR	1,5	TRM55971.00	0,0075
HV12-SINOS-POAL	25/01/2016 18:43	00:25:05	TPSHIPER SR	1,18	TRM55971.00	0,0075
HV13-SINOS-POAL	25/01/2016 18:08	00:27:15	TPSHIPER SR	1,77	TRM55971.00	0,0075
HV14-SINOS-POAL	25/01/2016 17:21	00:32:55	TPSHIPER SR	1,5	TRM55971.00	0,0075
HV15-SINOS-POAL	25/01/2016 15:30	00:31:00	TPSHIPER SR	1,85	TRM55971.00	0,0075
HV16-SINOS-POAL	25/01/2016 16:12	00:31:50	TPSHIPER SR	1,5	TRM55971.00	0,0075
HV17-SINOS-POAL	25/01/2016 12:15	00:41:00	TPSHIPER SR	2,75	TRM55971.00	0,0075
HV18-SINOS-POAL	25/01/2016 13:31	00:50:25	TPSHIPER SR	3	TRM55971.00	0,0075
HV46-SINOS-POAL	25/01/2016 18:52	00:39:40	Legant E	2	TRM55971.00	0,0075
HV47-SINOS-POAL	25/01/2016 19:40	00:40:10	Legant E	2	TRM55971.00	0,0075

HV48-SINOS-POAL	25/01/2016 17:59	00:41:20	Legant E	2,3	TRM55971.00	0,0075
HV49-SINOS-POAL	25/01/2016 17:11	00:42:20	Legant E	3	TRM55971.00	0,0075
HV50-SINOS-POAL	25/01/2016 16:26	00:39:50	Legant E	2,1	TRM55971.00	0,0075
HV51-SINOS-POAL	25/01/2016 14:43	00:41:45	Legant E	3,6	TRM55971.00	0,0075
HV52-SINOS-POAL	25/01/2016 12:46	00:50:30	Legant E	2	TRM55971.00	0,0075
HV55-SINOS-POAL	25/01/2016 15:35	00:39:35	Legant E	3	TRM55971.00	0,0075
HV56-SINOS-POAL	25/01/2016 11:57	00:39:25	Legant E	2,5	TRM55971.00	0,0075
HV57-SINOS-POAL	25/01/2016 10:18	00:40:35	Legant E	2	TRM55971.00	0,0075
HV58-SINOS-POAL	25/01/2016 11:07	00:40:05	Legant E	3	TRM55971.00	0,0075
HV59-SINOS-POAL	25/01/2016 13:43	00:46:35	Legant E	2	TRM55971.00	0,0075
PONTO DE CONTROLE						
Nome	Latitude	Longitude	Alt Elip (m)	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão u (m)
POAL	30°04'26,552800S	51°07'11,153200W	76,745	0	0	0
PONTOS AJUSTADOS						
Nome	Latitude	Longitude	Alt Elip (m)	Malha Norte (m)	Malha Este (m)	
no data met						

Anexo 8 - Pontos de Apoio Bacia do Rio Sinos G

PROJETO					
Project name: Gravatai_SINOS 26 01 2016.ttp					
Project folder: G:\Dados\Jobs					
Creation time: 30/7/2013 13:17:07					
Created by:					
Comment:					
Linear unit: Meters					
Angular unit: DMS					
Projection: UTMSouth-Zone_22 : 54W to 48W					
Datum: SIRGAS2000					
Geoid:					
AJUSTAMENTO					
COORDENADAS UTM					
Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Código	
BASE02	6721948,241	500329,3889	41,9595		
HV39-SINOS	6725856,67	518616,2368	31,9215		
HV40-SINOS	6730367,471	517531,4384	145,0723		
HV41-SINOS	6729990,296	518415,1342	99,1444		
HV42-SINOS	6730944,067	519906,9141	50,9845		
HV43-SINOS	6728683,288	520122,8737	39,171		
HV44-SINOS	6725828,668	520060,0281	43,6092		
HV45-SINOS	6727896,244	522598,1248	150,8754		
HV53-SINOS	6727422,127	524024,8612	313,3708		
HV54-SINOS	6728022,735	521358,0946	59,3644		
HV63-SINOS	6725440,805	521403,8049	119,5021		
COORDENADAS GEOGRÁFICAS					
Nome	Latitude	Longitude	Alt Elip (m)	Código	
BASE02	29°37'56,585547S	50°59'47,750149W	41,9595		
HV39-SINOS	29°35'49,097733S	50°48'27,911656W	31,9215		
HV40-SINOS	29°33'22,596201S	50°49'08,502036W	145,0723		
HV41-SINOS	29°33'34,804973S	50°48'35,639608W	99,1444		
HV42-SINOS	29°33'03,733849S	50°47'40,263681W	50,9845		
HV43-SINOS	29°34'17,175323S	50°47'32,088430W	39,171		
HV44-SINOS	29°35'49,926787S	50°47'34,234827W	43,6092		
HV45-SINOS	29°34'42,593946S	50°46'00,031999W	150,8754		
HV53-SINOS	29°34'57,902049S	50°45'06,963214W	313,3708		
HV54-SINOS	29°34'38,562960S	50°46'46,132327W	59,3644		
HV63-SINOS	29°36'02,448023S	50°46'44,250496W	119,5021		
DESVIO PADRÃO					
Nome	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão Hz (m)	Desv Padrão u (m)	Código
BASE02	0	0	0	0	
HV39-SINOS	0,00872	0,00914	0,01263	0,0288	
HV40-SINOS	0,00537	0,00507	0,00738	0,031	
HV41-SINOS	0,00647	0,0068	0,00939	0,019	
HV42-SINOS	0,00905	0,00526	0,01046	0,0145	
HV43-SINOS	0,00531	0,00581	0,00787	0,014	
HV44-SINOS	0,0063	0,00456	0,00778	0,0153	
HV45-SINOS	0,01008	0,01508	0,01814	0,025	
HV53-SINOS	0,00986	0,00981	0,0139	0,0263	
HV54-SINOS	0,00722	0,00713	0,01015	0,0199	
HV63-SINOS	0,01373	0,01493	0,02029	0,0321	
FATOR DE ESCALA					
Nome	Fator de Escala Combinado Proj ao Terr	Convergência	Código		
BASE02	1,000406747	-0°00'06,0567			
HV39-SINOS	1,000400893	-0°05'41,8206			
HV40-SINOS	1,000419145	-0°05'21,3706			
HV41-SINOS	1,000411541	-0°05'37,6162			
HV42-SINOS	1,000403272	-0°06'04,8382			
HV43-SINOS	1,000401311	-0°06'09,1019			
HV44-SINOS	1,000402039	-0°06'08,3342			
HV45-SINOS	1,000417545	-0°06'54,6230			
HV53-SINOS	1,000442239	-0°07'20,8766			
HV54-SINOS	1,000403849	-0°06'31,8534			
HV63-SINOS	1,000413268	-0°06'33,0637			
PRECISÃO					
Nome	dN (m)	dE (m)	dZ (m)	Precisão Horizontal (m)	Precisão Vertical (m)
BASE02-HV39-SINOS	3908,429	18286,8479	-10,038	0,0126	0,0288
BASE02-HV40-SINOS	8419,2293	17202,0495	103,1128	0,0074	0,031
BASE02-HV41-SINOS	8042,0544	18085,7453	57,1849	0,0094	0,019
BASE02-HV42-SINOS	8995,8257	19577,5252	9,0251	0,0105	0,0145
BASE02-HV43-SINOS	6735,0462	19793,4849	-2,7885	0,0079	0,014
BASE02-HV44-SINOS	3880,4267	19730,6393	1,6497	0,0078	0,0153
BASE02-HV45-SINOS	5948,0023	22268,7359	108,9159	0,0181	0,025
BASE02-HV53-SINOS	5473,8854	23695,4723	271,4113	0,0139	0,0264
BASE02-HV54-SINOS	6074,4934	21028,7057	17,4049	0,0102	0,0199
BASE02-HV63-SINOS	3492,5632	21074,416	77,5426	0,0203	0,0321

DISTÂNCIA E PDOP						
Nome	Distancia (m)	PDOP	HDOP	VDOP	Status	
BASE02-HV39-SINOS	18707,4163	1,935	0,792	1,765	PostProcessed	
BASE02-HV40-SINOS	19160,0553	2,127	0,772	1,982	PostProcessed	
BASE02-HV41-SINOS	19801,3369	1,636	0,736	1,461	PostProcessed	
BASE02-HV42-SINOS	21554,1372	1,532	0,806	1,303	PostProcessed	
BASE02-HV43-SINOS	20916,4173	1,676	0,882	1,425	PostProcessed	
BASE02-HV44-SINOS	20116,7405	1,807	0,814	1,613	PostProcessed	
BASE02-HV45-SINOS	23059,178	2,09	0,973	1,85	PostProcessed	
BASE02-HV53-SINOS	24331,3649	1,647	0,812	1,433	PostProcessed	
BASE02-HV54-SINOS	21897,3758	2,43	1,287	2,061	PostProcessed	
BASE02-HV63-SINOS	21370,767	1,817	0,752	1,654	PostProcessed	
DURAÇÃO E INTERVALO						
Nome	Hora Início	Duração	Tipo antena Base	Alt Antena Base (m)	Tipo Antena Rover	Altura Antena Rover (m)
BASE02-HV39-SINOS	26/01/2016 18:31	00:30:00	TPSHIPER_SR	1,604	Legant E	2,15
BASE02-HV40-SINOS	26/01/2016 12:40	00:33:10	TPSHIPER_SR	1,604	Legant E	2
BASE02-HV41-SINOS	26/01/2016 12:02	00:32:00	TPSHIPER_SR	1,604	Legant E	3,7
BASE02-HV42-SINOS	26/01/2016 11:08	00:40:25	TPSHIPER_SR	1,604	Legant E	2
BASE02-HV43-SINOS	26/01/2016 13:23	00:41:25	TPSHIPER_SR	1,604	Legant E	2
BASE02-HV44-SINOS	26/01/2016 17:08	00:33:45	TPSHIPER_SR	1,604	Legant E	2
BASE02-HV45-SINOS	26/01/2016 15:22	00:43:10	TPSHIPER_SR	1,604	Legant E	3
BASE02-HV53-SINOS	26/01/2016 16:13	00:40:50	TPSHIPER_SR	1,604	Legant E	2,4
BASE02-HV54-SINOS	26/01/2016 14:36	00:40:45	TPSHIPER_SR	1,604	Legant E	2
BASE02-HV63-SINOS	26/01/2016 17:47	00:36:55	TPSHIPER_SR	1,604	Legant E	2
PONTO DE CONTROLE						
Nome	Latitude	Longitude	Alt Elip (m)	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão u (m)
BASE02	29°37'56,585547S	50°59'47,750149W	41,9595	0	0	0
PONTOS AJUSTADOS						
Nome	Latitude	Longitude	Alt Elip (m)	Malha Norte (m)	Malha Este (m)	
no data met						

Anexo 8 - Pontos de Apoio Bacia do Rio Sinos H

PROJETO					
Project name: Gravatai_Sinos 27 01 2016.ttp					
Project folder: G:\Dados\Jobs					
Creation time: 30/7/2013 13:17:07					
Created by:					
Comment:					
Linear unit: Meters					
Angular unit: DMS					
Projection: UTMSouth-Zone_22 : 54W to 48W					
Datum: SIRGAS2000					
Geoid:					
AJUSTAMENTO					
COORDENADAS UTM					
Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Código	
BASE-02	6721948,241	500329,3889	41,9595		
HV06-SINOS	6718969,796	539382,1424	52,8682		
HV07-SINOS	6717729,247	541221,162	124,1947		
HV08-SINOS	6718614,384	540233,4229	40,655		
HV09-SINOS	6721014,628	544633,9238	63,3568		
HV28-SINOS	6718120,716	524689,854	27,5901		
HV29-SINOS	6720374,905	524403,4718	41,6028		
HV30-SINOS	6719945,754	523439,8128	34,0395		
HV32-SINOS	6721452,916	521861,9037	63,7476		
HV33-SINOS	6722061,821	520264,0369	38,4865		
HV35-SINOS	6723078,325	514336,1132	50,4562		
HV36-SINOS	6723969,276	515797,0411	86,0052		
COORDENADAS GEOGRÁFICAS					
Nome	Latitude	Longitude	Alt Elip (m)	Código	
BASE-02	29°37'56,585547S	50°59'47,750149W	41,9595		
HV06-SINOS	29°39'31,107925S	50°35'35,018897W	52,8682		
HV07-SINOS	29°40'11,197644S	50°34'26,440716W	124,1947		
HV08-SINOS	29°39'42,556792S	50°35'03,305225W	40,655		
HV09-SINOS	29°38'24,033168S	50°32'19,965041W	63,3568		
HV28-SINOS	29°40'00,059196S	50°44'41,483660W	27,5901		
HV29-SINOS	29°38'46,841064S	50°44'52,320210W	41,6028		
HV30-SINOS	29°39'00,850996S	50°45'28,129571W	34,0395		
HV32-SINOS	29°38'11,986749S	50°46'26,930593W	63,7476		
HV33-SINOS	29°37'52,300806S	50°47'26,397671W	38,4865		
HV35-SINOS	29°37'19,571285S	50°51'06,899680W	50,4562		
HV36-SINOS	29°36'50,560232S	50°50'12,620661W	86,0052		
DESVIO PADRÃO					
Nome	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão Hz (m)	Desv Padrão u (m)	Código
BASE-02	0	0	0	0	
HV06-SINOS	0,00816	0,00791	0,01136	0,026	
HV07-SINOS	0,01085	0,00846	0,01376	0,0261	
HV08-SINOS	0,00958	0,00792	0,01243	0,0274	
HV09-SINOS	0,01047	0,01106	0,01523	0,028	
HV28-SINOS	0,01199	0,01043	0,01589	0,032	
HV29-SINOS	0,0088	0,01081	0,01394	0,0358	
HV30-SINOS	0,00697	0,00624	0,00935	0,0176	
HV32-SINOS	0,24015	0,19885	0,31179	0,7481	
HV33-SINOS	0,01084	0,00587	0,01232	0,0163	
HV35-SINOS	0,00965	0,00789	0,01246	0,0255	
HV36-SINOS	0,01949	0,01394	0,02396	0,0467	
FATOR DE ESCALA					
Nome	Fator de Escala Combinado Proj ao Terr	Convergência	Código		
BASE-02	1,000406747	-0°00'06,0567			
HV06-SINOS	1,000389311	-0°12'04,9282			
HV07-SINOS	1,000398668	-0°12'39,1232			
HV08-SINOS	1,000386556	-0°12'20,6939			
HV09-SINOS	1,000385509	-0°13'40,9821			
HV28-SINOS	1,000396965	-0°07'34,6252			
HV29-SINOS	1,000399339	-0°07'28,9815			
HV30-SINOS	1,000398721	-0°07'11,3198			
HV32-SINOS	1,000404268	-0°06'42,0629			
HV33-SINOS	1,000401133	-0°06'12,5937			
HV35-SINOS	1,000405545	-0°04'23,4998			
HV36-SINOS	1,000410583	-0°04'50,2570			
PRECISÃO					
Nome	dN (m)	dE (m)	dZ (m)	Precisão Horizontal (m)	Precisão Vertical (m)
BASE-02-HV06-SINOS	-2978,4455	39052,7535	10,9087	0,0114	0,026
BASE-02-HV07-SINOS	-4218,9939	40891,7731	82,2352	0,0138	0,0261
BASE-02-HV08-SINOS	-3333,8573	39904,034	-1,3045	0,0124	0,0274
BASE-02-HV09-SINOS	-933,6136	44304,5349	21,3973	0,0152	0,028
BASE-02-HV28-SINOS	-3827,525	24360,4651	-14,3694	0,0159	0,032
BASE-02-HV29-SINOS	-1573,3367	24074,083	-0,3567	0,0139	0,0358
BASE-02-HV30-SINOS	-2002,4875	23110,4239	-7,92	0,0093	0,0176
BASE-02-HV32-SINOS	-495,3256	21532,5148	21,7881	0,3118	0,7481
BASE-02-HV33-SINOS	113,5796	19934,648	-3,473	0,0123	0,0163
BASE-02-HV35-SINOS	1130,0835	14006,7243	8,4967	0,0125	0,0255
BASE-02-HV36-SINOS	2021,0351	15467,6522	44,0457	0,024	0,0467

DISTÂNCIA E PDOP						
Nome	Distancia (m)	PDOP	HDOP	VDOP	Status	
BASE-02-HV06-SINOS	39181,8194	1,786	0,751	1,621	PostProcessed	
BASE-02-HV07-SINOS	41125,5502	1,877	0,746	1,722	PostProcessed	
BASE-02-HV08-SINOS	40059,0066	1,946	0,888	1,731	PostProcessed	
BASE-02-HV09-SINOS	44332,0192	1,797	0,842	1,587	PostProcessed	
BASE-02-HV28-SINOS	24669,2511	2,054	1,015	1,786	PostProcessed	
BASE-02-HV29-SINOS	24135,1778	1,906	0,845	1,709	PostProcessed	
BASE-02-HV30-SINOS	23206,3741	1,78	0,904	1,533	PostProcessed	
BASE-02-HV32-SINOS	21546,9661	2,021	0,806	1,854	PostProcessed	
BASE-02-HV33-SINOS	19943,0324	1,429	0,797	1,186	PostProcessed	
BASE-02-HV35-SINOS	14057,9513	2,018	0,762	1,869	PostProcessed	
BASE-02-HV36-SINOS	15605,5702	1,895	0,841	1,698	PostProcessed	
DURAÇÃO E INTERVALO						
Nome	Hora Início	Duração	Tipo antena Base	Alt Antena Base (m)	Tipo Antena Rover	Altura Antena Rover (m)
BASE-02-HV06-SINOS	27/01/2016 18:30	00:50:05	TPSHIPER_SR	1,604	Legant E	2,5
BASE-02-HV07-SINOS	27/01/2016 17:32	00:48:35	TPSHIPER_SR	1,604	Legant E	2,4
BASE-02-HV08-SINOS	27/01/2016 19:25	00:56:05	TPSHIPER_SR	1,604	Legant E	2
BASE-02-HV09-SINOS	27/01/2016 16:06	01:01:45	TPSHIPER_SR	1,604	Legant E	2
BASE-02-HV28-SINOS	27/01/2016 15:03	00:40:45	TPSHIPER_SR	1,604	Legant E	2
BASE-02-HV29-SINOS	27/01/2016 12:51	00:40:20	TPSHIPER_SR	1,604	Legant E	2
BASE-02-HV30-SINOS	27/01/2016 13:38	00:40:15	TPSHIPER_SR	1,604	Legant E	2,4
BASE-02-HV32-SINOS	27/01/2016 12:10	00:31:00	TPSHIPER_SR	1,604	Legant E	2,4
BASE-02-HV33-SINOS	27/01/2016 11:26	00:29:20	TPSHIPER_SR	1,604	Legant E	2
BASE-02-HV35-SINOS	27/01/2016 09:54	00:30:00	TPSHIPER_SR	1,604	Legant E	2
BASE-02-HV36-SINOS	27/01/2016 10:34	00:31:20	TPSHIPER_SR	1,604	Legant E	2,2
PONTO DE CONTROLE						
Nome	Latitude	Longitude	Alt Elip (m)	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão u (m)
BASE-02	29°37'56,585547S	50°59'47,750149W	41,9595	0	0	0
PONTOS AJUSTADOS						
Nome	Latitude	Longitude	Alt Elip (m)	Malha Norte (m)	Malha Este (m)	
no data met						

Anexo 8 - Pontos de Apoio Bacia do Rio Sinos I

PROJETO						
Project name: Gravatai_Sinos 28 01 2016.ttp						
Project folder: G:\Dados\Jobs						
Creation time: 30/7/2013 13:17:07						
Created by:						
Comment:						
Linear unit: Meters						
Angular unit: DMS						
Projection: UTMSouth-Zone_22 : 54W to 48W						
Datum: SIRGAS2000						
Geoid:						
AJUSTAMENTO						
COORDENADAS UTM						
Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Código		
BASE-02	6721948,241	500329,3889	41,9595			
HV01-SINOS	6705678,419	554442,1196	46,312			
HV02-SINOS	6704087,545	553964,1428	47,44			
HV03-SINOS	6702910,907	556992,3708	74,0882			
HV04-SINOS	6704426,152	557224,0603	74,5337			
HV05-SINOS	6704352,598	555695,7865	45,4981			
COORDENADAS GEOGRAFICAS						
Nome	Latitude	Longitude	Alt Elip (m)	Código		
BASE-02	29°37'56,585547S	50°59'47,750149W	41,9595			
HV01-SINOS	29°46'40,875280S	50°26'12,411010W	46,312			
HV02-SINOS	29°47'32,635249S	50°26'29,924788W	47,44			
HV03-SINOS	29°48'10,371955S	50°24'36,908964W	74,0882			
HV04-SINOS	29°47'21,106317S	50°24'28,568246W	74,5337			
HV05-SINOS	29°47'23,747431S	50°25'25,475930W	45,4981			
DESVIO PADRÃO						
Nome	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão Hz (m)	Desv Padrão u (m)	Código	
BASE-02						
HV01-SINOS	0,00967	0,00859	0,01293	0,0337		
HV02-SINOS	0,01554	0,01139	0,01926	0,0308		
HV03-SINOS	0,01365	0,01217	0,01829	0,0323		
HV04-SINOS	0,0117	0,01076	0,0159	0,0337		
HV05-SINOS	0,01682	0,01519	0,02267	0,0405		
FATOR DE ESCALA						
Nome	Fator de Escala Combinado Proj ao Terr	Convergência	Código			
BASE-02	1,000406747	-0°00'06,0567				
HV01-SINOS	1,000370835	-0°16'47,0087				
HV02-SINOS	1,000371652	-0°16'38,7478				
HV03-SINOS	1,000371688	-0°17'35,2421				
HV04-SINOS	1,000371431	-0°17'38,9461				
HV05-SINOS	1,000369003	-0°17'10,6946				
PRECISÃO						
Nome	dN (m)	dE (m)	dZ (m)	Precisão Horizontal (m)	Precisão Vertical (m)	
BASE-02-HV01-SINOS	-16269,8227	54112,7307	4,3525	0,0129	0,0337	
BASE-02-HV02-SINOS	-17860,6967	53634,7539	5,4805	0,0192	0,0308	
BASE-02-HV03-SINOS	-19037,3341	56662,9819	32,1287	0,0183	0,0323	
BASE-02-HV04-SINOS	-17522,0898	56894,6714	32,5742	0,0159	0,0337	
BASE-02-HV05-SINOS	-17595,6435	55366,3976	3,5386	0,0227	0,0405	
DISTÂNCIA E PDOP						
Nome	Distancia (m)	PDOP	HDOP	VDOP	Status	
BASE-02-HV01-SINOS	56527,8296	2,504	0,862	2,351	PostProcessed	
BASE-02-HV02-SINOS	56552,5967	1,809	0,932	1,55	PostProcessed	
BASE-02-HV03-SINOS	59798,9765	1,742	0,814	1,541	PostProcessed	
BASE-02-HV04-SINOS	59555,0849	1,835	0,78	1,66	PostProcessed	
BASE-02-HV05-SINOS	58117,8332	1,931	0,976	1,667	PostProcessed	
DURAÇÃO E INTERVALO						
Nome	Hora Início	Duração	Tipo antena Base	Alt Antena Base (m)	Tipo Antena Rover	Altura Antena Rover (m)
BASE-02-HV01-SINOS	28/01/2016 12:16	01:30:50	TPSHIPER SR	1,604	HiPer+	2,5
BASE-02-HV02-SINOS	28/01/2016 10:39	01:30:05	TPSHIPER SR	1,604	HiPer+	2
BASE-02-HV03-SINOS	28/01/2016 15:37	01:47:50	TPSHIPER SR	1,604	HiPer+	2,5
BASE-02-HV04-SINOS	28/01/2016 17:35	01:42:25	TPSHIPER SR	1,604	HiPer+	2,5
BASE-02-HV05-SINOS	28/01/2016 13:52	01:37:25	TPSHIPER SR	1,604	HiPer+	4,1
PONTO DE CONTROLE						
Nome	Latitude	Longitude	Alt Elip (m)	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão u (m)
BASE-02	29°37'56,585547S	50°59'47,750149W	41,9595			
PONTOS AJUSTADOS						
Nome	Latitude	Longitude	Alt Elip (m)	Malha Norte (m)	Malha Este (m)	
no data met						

Anexo 8 - Pontos de Apoio Bacia do Rio Sinos J

PROJETO					
Project name: Gravatai_Sinos 16 01 2016.ttp					
Project folder: G:\Dados\Jobs					
Creation time: 30/7/2013 13:17:07					
Created by:					
Comment:					
Linear unit: Meters					
Angular unit: DMS					
Projection: UTMSouth-Zone_22 : 54W to 48W					
Datum: SIRGAS2000					
Geoid:					
AJUSTAMENTO					
COORDENADAS UTM					
Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Código	
BASE-01	6687868,404	498550,9884	68,14		
HV171-SINOS	6693942,826	483069,7393	25,448		
HV173-SINOS	6694273,096	485994,0734	21,536		
HV174-SINOS	6693998,613	487298,2173	37,3523		
HV175-SINOS	6695104,819	488812,6393	25,7752		
HV176-SINOS	6691567,613	487310,6244	43,6849		
HV177-SINOS	6691049,099	485925,3814	38,4616		
HV178-SINOS	6690648,127	484524,7288	26,6822		
HV179-SINOS	6690284,399	483074,5594	24,0175		
HV180-SINOS	6690458,451	481419,8662	8,3569		
HV181-SINOS	6690556,607	480293,7714	8,8266		
HV182-SINOS	6689033,147	477159,5196	7,2622		
HV183-SINOS	6689752,345	478972,9765	7,7481		
COORDENADAS GEOGRÁFICAS					
Nome	Latitude	Longitude	Alt Elip (m)	Código	
BASE-01	29°56'23,824700S	51°00'54,053200W	68,14		
HV171-SINOS	29°53'06,056337S	51°10'31,210892W	25,448		
HV173-SINOS	29°52'55,458554S	51°08'42,167739W	21,536		
HV174-SINOS	29°53'04,427179S	51°07'53,558577W	37,3523		
HV175-SINOS	29°52'28,540471S	51°06'57,055179W	25,7752		
HV176-SINOS	29°54'23,408501S	51°07'53,199641W	43,6849		
HV177-SINOS	29°54'40,200155S	51°08'44,881154W	38,4616		
HV178-SINOS	29°54'53,166693S	51°09'37,136037W	26,6822		
HV179-SINOS	29°55'04,914962S	51°10'31,239275W	24,0175		
HV180-SINOS	29°54'59,174173S	51°11'32,940390W	8,3569		
HV181-SINOS	29°54'55,922029S	51°12'14,931029W	8,8266		
HV182-SINOS	29°55'45,221940S	51°14'11,937200W	7,2622		
HV183-SINOS	29°55'21,972695S	51°13'04,245814W	7,7481		
DESVIO PADRÃO					
Nome	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão Hz (m)	Desv Padrão u (m)	Código
BASE-01	0	0	0	0	
HV171-SINOS	0,00847	0,00758	0,01137	0,0224	
HV173-SINOS	0,01219	0,00951	0,01546	0,0269	
HV174-SINOS	0,00919	0,00803	0,0122	0,0218	
HV175-SINOS	0,00647	0,00591	0,00876	0,018	
HV176-SINOS	0,01085	0,01109	0,01551	0,0311	
HV177-SINOS	0,00769	0,0079	0,01103	0,0367	
HV178-SINOS	0,00458	0,00479	0,00663	0,021	
HV179-SINOS	0,02855	0,02857	0,04039	0,0902	
HV180-SINOS	0,00551	0,00448	0,00711	0,0217	
HV181-SINOS	0,00837	0,00491	0,0097	0,0146	
HV182-SINOS	0,00614	0,00578	0,00843	0,0167	
HV183-SINOS	0,01214	0,00653	0,01379	0,0244	
FATOR DE ESCALA					
Nome	Fator de Escala Combinado Proj ao Terr	Convergência	Código		
BASE-01	1,000410834	0°00'26,9775			
HV171-SINOS	1,000400617	0°05'14,5085			
HV173-SINOS	1,00040112	0°04'20,1530			
HV174-SINOS	1,000404033	0°03'55,9528			
HV175-SINOS	1,000402662	0°03'27,7368			
HV176-SINOS	1,000405031	0°03'55,9311			
HV177-SINOS	1,000403753	0°04'21,7359			
HV178-SINOS	1,000401393	0°04'47,8248			
HV179-SINOS	1,000400394	0°05'14,8380			
HV180-SINOS	1,00039721	0°05'45,5956			
HV181-SINOS	1,000396751	0°06'06,5280			
HV182-SINOS	1,000394859	0°07'05,0588			
HV183-SINOS	1,000395918	0°06'31,2085			
PRECISÃO					
Nome	dN (m)	dE (m)	dZ (m)	Precisão Horizontal (m)	Precisão Vertical (m)
BASE-01-HV171-SINOS	6074,4222	-15481,249	-42,692	0,0114	0,0224
BASE-01-HV173-SINOS	6404,6914	-12556,915	-46,604	0,0154	0,0269
BASE-01-HV174-SINOS	6130,2093	-11252,7711	-30,7877	0,0122	0,0218
BASE-01-HV175-SINOS	7236,4144	-9738,3491	-42,3648	0,0088	0,018
BASE-01-HV176-SINOS	3699,2083	-11240,3639	-24,4551	0,0155	0,0311

BASE-01-HV177-SINOS	3180,6952	-12625,607	-29,6784	0,011	0,0367	
BASE-01-HV178-SINOS	2779,7228	-14026,2596	-41,4578	0,0066	0,021	
BASE-01-HV179-SINOS	2415,9952	-15476,429	-44,1225	0,0403	0,0902	
BASE-01-HV180-SINOS	2590,0465	-17131,1222	-59,7831	0,0071	0,0217	
BASE-01-HV181-SINOS	2688,203	-18257,217	-59,3134	0,0097	0,0146	
BASE-01-HV182-SINOS	1164,7428	-21391,4687	-60,8778	0,0084	0,0167	
BASE-01-HV183-SINOS	1883,9411	-19578,0119	-60,3919	0,0138	0,0244	
DISTÂNCIA E PDOP						
Nome	Distancia (m)	PDOP	HDOP	VDOP	Status	
BASE-01-HV171-SINOS	16637,1294	1,992	0,952	1,749	PostProcessed	
BASE-01-HV173-SINOS	14101,7647	2,414	1,112	2,143	PostProcessed	
BASE-01-HV174-SINOS	12819,4824	2,275	1,086	1,999	PostProcessed	
BASE-01-HV175-SINOS	12137,6569	2,058	0,97	1,815	PostProcessed	
BASE-01-HV176-SINOS	11838,2777	2,748	1,213	2,466	PostProcessed	
BASE-01-HV177-SINOS	13025,4298	3,171	1,318	2,884	PostProcessed	
BASE-01-HV178-SINOS	14304,9192	3,331	0,992	3,18	PostProcessed	
BASE-01-HV179-SINOS	15670,2912	4,347	1,837	3,94	PostProcessed	
BASE-01-HV180-SINOS	17332,9179	2,87	0,955	2,706	PostProcessed	
BASE-01-HV181-SINOS	18461,615	1,86	1,08	1,514	PostProcessed	
BASE-01-HV182-SINOS	21431,8813	2,061	1,034	1,783	PostProcessed	
BASE-01-HV183-SINOS	19676,4804	3,891	2,072	3,293	PostProcessed	
DURAÇÃO E INTERVALO						
Nome	Hora Início	Duração	Tipo antena Base	Alt Antena Base (m)	Tipo Antena Rover	Altura Antena Rover (m)
BASE-01-HV171-SINOS	16/01/2016 18:49	00:32:30	TPSHIPER_SR	1,522	Legant E	3
BASE-01-HV173-SINOS	16/01/2016 18:05	00:30:50	TPSHIPER_SR	1,522	Legant E	2
BASE-01-HV174-SINOS	16/01/2016 17:18	00:39:45	TPSHIPER_SR	1,522	Legant E	2,5
BASE-01-HV175-SINOS	16/01/2016 19:43	00:38:25	TPSHIPER_SR	1,522	Legant E	2
BASE-01-HV176-SINOS	16/01/2016 16:45	00:18:15	TPSHIPER_SR	1,522	Legant E	2,4
BASE-01-HV177-SINOS	16/01/2016 16:08	00:29:55	TPSHIPER_SR	1,522	Legant E	2,4
BASE-01-HV178-SINOS	16/01/2016 13:38	00:30:05	TPSHIPER_SR	1,522	Legant E	3,75
BASE-01-HV179-SINOS	16/01/2016 15:25	00:31:05	TPSHIPER_SR	1,522	Legant E	2
BASE-01-HV180-SINOS	16/01/2016 12:52	00:30:40	TPSHIPER_SR	1,522	Legant E	2,5
BASE-01-HV181-SINOS	16/01/2016 12:12	00:30:05	TPSHIPER_SR	1,522	Legant E	2,5
BASE-01-HV182-SINOS	16/01/2016 10:38	00:32:20	TPSHIPER_SR	1,522	Legant E	3
BASE-01-HV183-SINOS	16/01/2016 11:26	00:32:50	TPSHIPER_SR	1,522	Legant E	2,5
PONTO DE CONTROLE						
Nome	Latitude	Longitude	Alt Elip (m)	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão u (m)
BASE-01	29°56'23,824700S	51°00'54,053200W	68,14	0	0	0
PONTOS AJUSTADOS						
Nome	Latitude	Longitude	Alt Elip (m)	Malha Norte (m)	Malha Este (m)	
no data met						

Anexo 8 - Pontos de Apoio Bacia do Rio Sinos K

PROJETO						
Project name: Gravataj_Sinos 16 01 2016.ttp						
Project folder: G:\Dados\Jobs						
Creation time: 30/7/2013 13:17:07						
Created by:						
Comment:						
Linear unit: Meters						
Angular unit: DMS						
Projection: UTMSouth-Zone_22 : 54W to 48W						
Datum: SIRGAS2000						
Geoid:						
AJUSTAMENTO						
COORDENADAS UTM						
Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Código		
BASE-01	6687868,404	498550,9884	68,14			
MR01	6687099,988	501506,9589	14,5975			
MR02	6685784,736	489374,4813	10,0378			
MR03	6710402,027	485462,4774	12,0868			
COORDENADAS GEOGRÁFICAS						
Nome	Latitude	Longitude	Alt Elip (m)	Código		
BASE-01	29°56'23,824700S	51°00'54,053200W	68,14			
MR01	29°56'48,789426S	50°59'03,781264W	14,5975			
MR02	29°57'31,358094S	51°06'36,443280W	10,0378			
MR03	29°44'11,416614S	51°09'01,202278W	12,0868			
DESVIO PADRÃO						
Nome	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão Hz (m)	Desv Padrão u (m)	Código	
BASE-01	0	0	0	0		
MR01	0,00153	0,0016	0,00221	0,0082		
MR02	0,00623	0,00563	0,0084	0,0205		
MR03	0,01273	0,00985	0,0161	0,0302		
FATOR DE ESCALA						
Nome	Fator de Escala Combinado Proj ao Terr	Convergência	Código			
BASE-01	1,000410834	0°00'26,9775				
MR01	1,000402424	-0°00'28,0642				
MR02	1,000400342	0°03'17,9744				
MR03	1,000399448	0°04'28,4433				
PRECISÃO						
Nome	dN (m)	dE (m)	dZ (m)	Precisão Horizontal (m)	Precisão Vertical (m)	
BASE-01-MR01	-768,4161	2955,9705	-53,5425	0,0022	0,0082	
BASE-01-MR02	-2083,6682	-9176,5071	-58,1022	0,0084	0,0205	
BASE-01-MR03	22533,623	-13088,511	-56,0532	0,0161	0,0302	
DISTÂNCIA E PDOP						
Nome	Distancia (m)	PDOP	HDOP	VDOP	Status	
BASE-01-MR01	3055,9253	2,102	0,776	1,953	PostProcessed	
BASE-01-MR02	9414,0952	1,983	0,932	1,75	PostProcessed	
BASE-01-MR03	26069,6437	1,62	0,698	1,462	PostProcessed	
DURAÇÃO E INTERVALO						
Nome	Hora Início	Duração	Tipo antena Base	Alt Antena Base (m)	Tipo Antena Rover	Altura Antena Rover (m)
BASE-01-MR01	16/01/2016 13:19	00:41:00	TPSHIPER_SR	1,522	HiPer+	1,5
BASE-01-MR02	16/01/2016 15:56	00:38:20	TPSHIPER_SR	1,522	HiPer+	1,5
BASE-01-MR03	16/01/2016 17:43	01:17:20	TPSHIPER_SR	1,522	HiPer+	1,5
PONTO DE CONTROLE						
Nome	Latitude	Longitude	Alt Elip (m)	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão u (m)
BASE-01	29°56'23,824700S	51°00'54,053200W	68,14	0	0	0
PONTOS AJUSTADOS						
Nome	Latitude	Longitude	Alt Elip (m)	Malha Norte (m)	Malha Este (m)	
no data met						

Anexo 8 - Pontos de Apoio Bacia do Rio Sinos L

PROJETO						
Project name: Gravatai_Sinos 18 01 2016.ttp						
Project folder: G:\Dados\Jobs						
Creation time: 30/7/2013 13:17:07						
Created by:						
Comment:						
Linear unit: Meters						
Angular unit: DMS						
Projection: UTMSouth-Zone 22 : 54W to 48W						
Datum: SIRGAS2000						
Geoid:						
AJUSTAMENTO						
COORDENADAS UTM						
Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Código		
HV137 SINOS	6706227,651	493295,1052	38,0594			
HV138 SINOS	6706863,451	491590,6283	30,7165			
HV139 SINOS	6707239,652	490365,202	53,7954			
HV141 SINOS	6707452,828	488902,8395	38,5196			
HV142 SINOS	6707286,618	487384,143	14,1513			
HV143 SINOS	6706879,237	484650,4123	8,5504			
HV144 SINOS	6706437,81	483120,6254	6,9745			
HV149 SINOS	6703422,59	481788,4475	8,685			
HV151 SINOS	6704684,781	485943,6806	43,8973			
HV153 SINOS	6704521,584	488789,9404	41,9983			
HV154 SINOS	6704344,513	490190,1042	77,7128			
HV155 SINOS	6701050,44	483014,9333	9,7112			
HV156 SINOS	6701183,693	484396,5166	24,9804			
HV159 SINOS	6702900,554	490158,2152	50,1114			
HV160 SINOS	6701465,371	490271,0737	66,5812			
HV161 SINOS	6697937,311	481649,5997	9,3656			
HV162 SINOS	6697845,93	482944,1987	12,9626			
HV163 SINOS	6697921,872	484503,3224	35,4295			
HV164 SINOS	6697560,407	485902,1046	26,5378			
HV168 SINOS	6694112,272	478917,7308	7,8359			
HV169 SINOS	6694056,336	480198,4645	8,1735			
HV170 SINOS	6693972,394	481678,9164	8,6665			
MR03	6710402,027	485462,4774	12,0868			
SAT-94041_RN1776B	6726772,601	491618,7381	175,7664			
COORDENADAS GEOGRÁFICAS						
Nome	Latitude	Longitude	Alt Elip (m)	Código		
HV137 SINOS	29°46'27,283138S	51°04'09,703190W	38,0594			
HV138 SINOS	29°46'06,588695S	51°05'13,163286W	30,7165			
HV139 SINOS	29°45'54,333824S	51°05'58,785758W	53,7954			
HV141 SINOS	29°45'47,363677S	51°06'53,234015W	38,5196			
HV142 SINOS	29°45'52,711350S	51°07'49,793842W	14,1513			
HV143 SINOS	29°46'05,835695S	51°09'31,614068W	8,5504			
HV144 SINOS	29°46'20,105668S	51°10'28,607539W	6,9745			
HV149 SINOS	29°47'58,000516S	51°11'18,402639W	8,685			
HV151 SINOS	29°47'17,188049S	51°08'43,556293W	43,8973			
HV153 SINOS	29°47'22,595054S	51°06'57,547857W	41,9983			
HV154 SINOS	29°47'28,390897S	51°06'05,400991W	77,7128			
HV155 SINOS	29°49'15,133153S	51°10'32,849507W	9,7112			
HV156 SINOS	29°49'10,869527S	51°09'41,366078W	24,9804			
HV159 SINOS	29°48'15,303543S	51°06'06,636305W	50,1114			
HV160 SINOS	29°49'01,935117S	51°06'02,478698W	66,5812			
HV161 SINOS	29°50'56,205933S	51°11'23,911820W	9,3656			
HV162 SINOS	29°50'59,241766S	51°10'35,668072W	12,9626			
HV163 SINOS	29°50'56,848620S	51°09'37,555938W	35,4295			
HV164 SINOS	29°51'08,652823S	51°08'45,441028W	26,5378			
HV168 SINOS	29°53'00,320337S	51°13'05,997382W	7,8359			
HV169 SINOS	29°53'02,214221S	51°12'18,252550W	8,1735			
HV170 SINOS	29°53'05,023975S	51°11'23,062896W	8,6665			
MR03	29°44'11,416614S	51°09'01,202278W	12,0868			
SAT-94041_RN1776B	29°35'19,738220S	51°05'11,561982W	175,7664			
DESVIO PADRÃO						
Nome	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão Hz (m)	Desv Padrão u (m)	Código	
HV137 SINOS	0,00829	0,00659	0,01059	0,0178		
HV138 SINOS	0,00362	0,00276	0,00455	0,0086		
HV139 SINOS	0,0044	0,00382	0,00583	0,0105		
HV141 SINOS	0,00624	0,00617	0,00877	0,0173		
HV142 SINOS	0,00407	0,00434	0,00595	0,0151		
HV143 SINOS	0,00309	0,00314	0,0044	0,008		
HV144 SINOS	0,0043	0,00342	0,0055	0,0092		
HV149 SINOS	0,00528	0,00371	0,00646	0,0124		
HV151 SINOS	0,00898	0,00992	0,01338	0,023		
HV153 SINOS	0,00881	0,00762	0,01165	0,0197		
HV154 SINOS	0,01362	0,01255	0,01851	0,0402		
HV155 SINOS	0,01079	0,01064	0,01516	0,027		
HV156 SINOS	0,00441	0,00473	0,00647	0,0221		
HV159 SINOS	0,05662	0,04694	0,07354	0,1349		
HV160 SINOS	0,00859	0,01122	0,01413	0,0508		

HV161 SINOS	0,00777	0,00745	0,01076	0,0236		
HV162 SINOS	0,00781	0,00428	0,00891	0,0134		
HV163 SINOS	0,0061	0,00539	0,00814	0,0154		
HV164 SINOS	0,01041	0,01195	0,01585	0,0411		
HV168 SINOS	0,01984	0,01647	0,02578	0,0485		
HV169 SINOS	0,01625	0,0141	0,02151	0,0369		
HV170 SINOS	0,00754	0,00793	0,01095	0,021		
MR03	0	0	0	0		
SAT-94041_RN1776B	0,0062	0,00668	0,00912	0,0286		
FATOR DE ESCALA						
Nome	Fator de Escala Combinado Proj ao Terr	Convergência	Código			
HV137 SINOS	1,000405581	0°02'03,9986				
HV138 SINOS	1,00040411	0°02'35,4846				
HV139 SINOS	1,000407461	0°02'58,1176				
HV141 SINOS	1,000404688	0°03'25,1361				
HV142 SINOS	1,000400417	0°03'53,2240				
HV143 SINOS	1,000398593	0°04'43,8033				
HV144 SINOS	1,000397737	0°05'12,1381				
HV149 SINOS	1,000397429	0°05'37,1437				
HV151 SINOS	1,000404613	0°04'20,1000				
HV153 SINOS	1,000405203	0°03'27,4449				
HV154 SINOS	1,000411175	0°03'01,5463				
HV155 SINOS	1,000398123	0°05'14,7105				
HV156 SINOS	1,000401076	0°04'49,0977				
HV159 SINOS	1,000406833	0°03'02,2324				
HV160 SINOS	1,000409446	0°03'00,2371				
HV161 SINOS	1,000397473	0°05'40,3942				
HV162 SINOS	1,000398604	0°05'16,3905				
HV163 SINOS	1,000402758	0°04'47,4604				
HV164 SINOS	1,000401873	0°04'21,5479				
HV168 SINOS	1,000395903	0°06'31,6143				
HV169 SINOS	1,000396602	0°06'07,8317				
HV170 SINOS	1,000397376	0°05'40,3416				
MR03	1,000399448	0°04'28,4433				
SAT-94041_RN1776B	1,000426892	0°02'33,8407				
PRECISÃO						
Nome	dN (m)	dE (m)	dZ (m)	Precisão Horizontal (m)	Precisão Vertical (m)	
HV137 SINOS-MR03	4174,3757	-7832,6279	-25,9726	0,0106	0,0178	
HV138 SINOS-MR03	3538,5765	-6128,151	-18,6297	0,0046	0,0086	
HV139 SINOS-MR03	3162,375	-4902,7247	-41,7086	0,0058	0,0105	
HV141 SINOS-MR03	2949,1996	-3440,3622	-26,4328	0,0088	0,0173	
HV142 SINOS-MR03	3115,4093	-1921,6656	-2,0645	0,0059	0,0151	
HV143 SINOS-MR03	3522,7903	812,0651	3,5364	0,0044	0,008	
HV144 SINOS-MR03	3964,2169	2341,852	5,1123	0,0055	0,0092	
HV149 SINOS-MR03	6979,4371	3674,0298	3,4018	0,0065	0,0124	
HV151 SINOS-MR03	5717,2465	-481,2033	-31,8105	0,0134	0,023	
HV153 SINOS-MR03	5880,4435	-3327,4631	-29,9115	0,0117	0,0197	
HV154 SINOS-MR03	6057,5141	-4727,6268	-65,626	0,0185	0,0402	
HV155 SINOS-MR03	9351,5874	2447,544	2,3756	0,0152	0,027	
HV156 SINOS-MR03	9218,3337	1065,9607	-12,8936	0,0065	0,0221	
HV159 SINOS-MR03	7501,4727	-4695,7378	-38,0246	0,0735	0,1349	
HV160 SINOS-MR03	8936,6558	-4808,5963	-54,4944	0,0141	0,0508	
HV161 SINOS-MR03	12464,7166	3812,8777	2,7212	0,0108	0,0236	
HV162 SINOS-MR03	12556,0968	2518,2786	-0,8758	0,0089	0,0134	
HV163 SINOS-MR03	12480,1549	959,155	-23,3427	0,0081	0,0154	
HV164 SINOS-MR03	12841,6201	-439,6272	-14,451	0,0159	0,0411	
HV168 SINOS-MR03	16289,7556	6544,7466	4,2509	0,0258	0,0485	
HV169 SINOS-MR03	16345,691	5264,0128	3,9133	0,0215	0,0369	
HV170 SINOS-MR03	16429,6328	3783,561	3,4203	0,011	0,021	
MR03-SAT-94041_RN1776B	16370,574	6156,2608	163,6796	0,0091	0,0286	
DISTÂNCIA E PDOP						
Nome	Distancia (m)	PDOP	HDOP	VDOP	Status	
HV137 SINOS-MR03	8879,1657	2,044	0,99	1,789	PostProcessed	
HV138 SINOS-MR03	7079,2905	2,605	1,156	2,334	PostProcessed	
HV139 SINOS-MR03	5836,6545	1,943	0,934	1,704	PostProcessed	
HV141 SINOS-MR03	4533,3304	2,067	0,978	1,821	PostProcessed	
HV142 SINOS-MR03	3661,8708	3,099	1,312	2,808	PostProcessed	
HV143 SINOS-MR03	3616,6207	1,545	0,775	1,337	PostProcessed	
HV144 SINOS-MR03	4606,1063	1,462	0,713	1,276	PostProcessed	
HV149 SINOS-MR03	7890,5405	1,87	0,808	1,687	PostProcessed	
HV151 SINOS-MR03	5739,8561	1,997	0,946	1,759	PostProcessed	
HV153 SINOS-MR03	6759,3831	2,588	1,411	2,17	PostProcessed	
HV154 SINOS-MR03	7687,3994	3,3	1,343	3,014	PostProcessed	
HV155 SINOS-MR03	9670,4287	1,626	0,7	1,468	PostProcessed	
HV156 SINOS-MR03	9283,4828	3,157	0,949	3,011	PostProcessed	
HV159 SINOS-MR03	8853,6236	2,933	1,5	2,52	PostProcessed	
HV160 SINOS-MR03	10152,4725	2,972	1,299	2,673	PostProcessed	
HV161 SINOS-MR03	13040,0378	1,797	0,728	1,642	PostProcessed	
HV162 SINOS-MR03	12811,2509	2,807	1,66	2,263	PostProcessed	
HV163 SINOS-MR03	12521,9987	1,926	0,98	1,659	PostProcessed	
HV164 SINOS-MR03	12854,2973	2,764	0,939	2,599	PostProcessed	
HV168 SINOS-MR03	17562,3145	1,547	0,708	1,375	PostProcessed	
HV169 SINOS-MR03	17179,2349	1,986	0,877	1,782	PostProcessed	
HV170 SINOS-MR03	16866,3741	1,668	0,744	1,493	PostProcessed	
MR03-SAT-94041_RN1776B	17497,8494	2,004	0,788	1,842	PostProcessed	

DURAÇÃO E INTERVALO						
Nome	Hora Início	Duração	Tipo antena Base	Alt Antena Base (m)	Tipo Antena Rover	Altura Antena Rover (m)
HV137 SINOS-MR03	18/01/2016 18:12	00:20:05	Legant E	2	TPSHIPER SR	1,535
HV138 SINOS-MR03	18/01/2016 17:44	00:21:00	Legant E	2	TPSHIPER SR	1,535
HV139 SINOS-MR03	18/01/2016 17:10	00:22:40	Legant E	2,6	TPSHIPER SR	1,535
HV141 SINOS-MR03	18/01/2016 18:52	00:19:55	Legant E	2,5	TPSHIPER SR	1,535
HV142 SINOS-MR03	18/01/2016 11:50	07:49:05	Legant E	2,7	TPSHIPER SR	1,535
HV143 SINOS-MR03	18/01/2016 16:49	00:18:55	HiPer+	1,55	TPSHIPER SR	1,535
HV144 SINOS-MR03	18/01/2016 17:18	00:21:10	HiPer+	2,2	TPSHIPER SR	1,535
HV149 SINOS-MR03	18/01/2016 17:55	00:19:15	HiPer+	2,45	TPSHIPER SR	1,535
HV151 SINOS-MR03	18/01/2016 19:53	00:20:40	Legant E	4	TPSHIPER SR	1,535
HV153 SINOS-MR03	18/01/2016 14:51	00:20:05	Legant E	2,5	TPSHIPER SR	1,535
HV154 SINOS-MR03	18/01/2016 16:28	00:22:20	Legant E	3	TPSHIPER SR	1,535
HV155 SINOS-MR03	18/01/2016 18:26	00:18:25	HiPer+	2,3	TPSHIPER SR	1,535
HV156 SINOS-MR03	18/01/2016 13:35	00:21:45	Legant E	3,15	TPSHIPER SR	1,535
HV159 SINOS-MR03	18/01/2016 15:18	00:21:00	Legant E	2	TPSHIPER SR	1,535
HV160 SINOS-MR03	18/01/2016 15:54	00:20:55	Legant E	2	TPSHIPER SR	1,535
HV161 SINOS-MR03	18/01/2016 18:58	00:16:00	HiPer+	2,1	TPSHIPER SR	1,535
HV162 SINOS-MR03	18/01/2016 11:50	00:23:00	Legant E	3,5	TPSHIPER SR	1,535
HV163 SINOS-MR03	18/01/2016 12:22	00:20:50	Legant E	2,4	TPSHIPER SR	1,535
HV164 SINOS-MR03	18/01/2016 12:49	00:22:35	Legant E	2,5	TPSHIPER SR	1,535
HV168 SINOS-MR03	18/01/2016 19:57	00:21:35	HiPer+	2,96	TPSHIPER SR	1,535
HV169 SINOS-MR03	18/01/2016 20:29	00:20:35	HiPer+	1,5	TPSHIPER SR	1,535
HV170 SINOS-MR03	18/01/2016 19:28	00:20:25	HiPer+	2	TPSHIPER SR	1,535
MR03-SAT-94041_RN1776B	18/01/2016 12:48	01:12:50	TPSHIPER_SR	1,535	HiPer+	1,5
PONTO DE CONTROLE						
Nome	Latitude	Longitude	Alt Elip (m)	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão u (m)
MR03	29°44'11,416614S	51°09'01,202278W	12,0868	0	0	0
PONTOS AJUSTADOS						
Nome	Latitude	Longitude	Alt Elip (m)	Malha Norte (m)	Malha Este (m)	
no data met						

Anexo 8 - Pontos de Apoio Bacia do Rio Sinos M

PROJETO						
Project name: Gravatai_Sinos 22 01 2016 MR 03 - Base 02.ttp						
Project folder: G:\Dados\Jobs						
Creation time: 30/7/2013 13:17:07						
Created by:						
Comment:						
Linear unit: Meters						
Angular unit: DMS						
Projection: UTMSouth-Zone_22 : 54W to 48W						
Datum: SIRGAS2000						
Geoid:						
AJUSTAMENTO						
COORDENADAS UTM						
Nome		Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Código	
BASE-02		6721948,241	500329,3889	41,9595		
MR03		6710402,027	485462,4774	12,0868		
COORDENADAS GEOGRÁFICAS						
Nome		Latitude	Longitude	Alt Elip (m)	Código	
BASE-02		29°37'56,585547S	50°59'47,750149W	41,9595		
MR03		29°44'11,416610S	51°09'01,202278W	12,0868		
DESVIO PADRÃO						
Nome		Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão Hz (m)	Desv Padrão u (m)	Código
BASE-02		0,00463	0,00422	0,00626	0,0145	
MR03		0	0	0	0	
FATOR DE ESCALA						
Nome		Fator de Escala Combinado Proj ao Terr	Convergência	Código		
BASE-02		1,000406747	-0°00'06,0567			
MR03		1,000399448	0°04'28,4433			
PRECISÃO						
Nome		dN (m)	dE (m)	dZ (m)	Precisão Horizontal (m)	Precisão Vertical (m)
BASE-02-MR03		-11546,2141	-14866,9115	29,8727	0,0063	0,0145
DISTÂNCIA E PDOP						
Nome		Distancia (m)	PDOP	HDOP	VDOP	Status
BASE-02-MR03		18831,5374	1,848	0,833	1,649	PostProcessed
DURAÇÃO E INTERVALO						
Nome		Hora Início	Duração	Tipo antena Base	Alt Antena Base (m)	Tipo Antena Rover
BASE-02-MR03		22/01/2016 12:27	02:14:50	HiPer+	1,5	TPSHIPER_SR
PONTO DE CONTROLE						
Nome		Latitude	Longitude	Alt Elip (m)	Desv Padrão n (m)	Desv Padrão e (m)
MR03		29°44'11,416610S	51°09'01,202278W	12,0868	0	0
PONTOS AJUSTADOS						
Nome		Latitude	Longitude	Alt Elip (m)	Malha Norte (m)	Malha Este (m)
no data met						

Anexo 8 - Pontos de Apoio Bacia do Rio Sinos N

PROJETO						
Project name: Gravatai_Sinos 22 01 2016.ttp						
Project folder: G:\Dados\Jobs						
Creation time: 30/7/2013 13:17:07						
Created by:						
Comment:						
Linear unit: Meters						
Angular unit: DMS						
Projection: UTMSouth-Zone_22 : 54W to 48W						
Datum: SIRGAS2000						
Geoid:						
AJUSTAMENTO						
COORDENADAS UTM						
Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Código		
BASE-02	6721948,242	500329,3889	42,08			
HV71-SINOS	6724581,287	506851,6818	42,2201			
HV75-SINOS	6722509,609	507059,5707	44,5648			
HV76-SINOS	6723718,059	506490,5338	44,7868			
HV77-SINOS	6724283,982	505209,3583	83,0802			
HV83-SINOS	6724563,876	500781,4229	66,1731			
HV114-SINOS	6716294,958	485141,4093	71,1434			
COORDENADAS GEOGRÁFICAS						
Nome	Latitude	Longitude	Alt Elip (m)	Código		
BASE-02	29°37'56,585540S	50°59'47,750149W	42,08			
HV71-SINOS	29°36'30,968913S	50°55'45,248339W	42,2201			
HV75-SINOS	29°37'38,274461S	50°55'37,470398W	44,5648			
HV76-SINOS	29°36'59,022568S	50°55'58,657581W	44,7868			
HV77-SINOS	29°36'40,657156S	50°56'46,306244W	83,0802			
HV83-SINOS	29°36'31,601626S	50°59'30,945944W	66,1731			
HV114-SINOS	29°40'59,942084S	51°09'12,863524W	71,1434			
DESVIO PADRÃO						
Nome	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão Hz (m)	Desv Padrão u (m)	Código	
BASE-02	0	0	0	0		
HV71-SINOS	0,00473	0,00481	0,00675	0,0174		
HV75-SINOS	0,00596	0,00532	0,00799	0,0175		
HV76-SINOS	0,0037	0,00323	0,00491	0,0076		
HV77-SINOS	0,00331	0,00242	0,0041	0,0072		
HV83-SINOS	0,00402	0,00302	0,00503	0,008		
HV114-SINOS	0,00696	0,00512	0,00864	0,0271		
FATOR DE ESCALA						
Nome	Fator de Escala Combinado Proj ao Terr	Convergência	Código			
BASE-02	1,000406766	-0°00'06,0567				
HV71-SINOS	1,00040621	-0°02'05,8658				
HV75-SINOS	1,000406542	-0°02'09,7832				
HV76-SINOS	1,000406672	-0°01'59,2692				
HV77-SINOS	1,000412871	-0°01'35,7067				
HV83-SINOS	1,000410543	-0°00'14,3549				
HV114-SINOS	1,000408605	0°04'33,7817				
PRECISÃO						
Nome	dN (m)	dE (m)	dZ (m)	Precisão Horizontal (m)	Precisão Vertical (m)	
BASE-02-HV71-SINOS	2633,0451	6522,2929	0,1401	0,0068	0,0174	
BASE-02-HV75-SINOS	561,3678	6730,1818	2,4848	0,008	0,0175	
BASE-02-HV76-SINOS	1769,8174	6161,1449	2,7068	0,0049	0,0076	
BASE-02-HV77-SINOS	2335,7402	4879,9694	41,0002	0,0041	0,0072	
BASE-02-HV83-SINOS	2615,6346	452,034	24,0931	0,005	0,008	
BASE-02-HV114-SINOS	-5653,2833	-15187,9796	29,0634	0,0086	0,0271	
DISTÂNCIA E PDOP						
Nome	Distancia (m)	PDOP	HDOP	VDOP	Status	
BASE-02-HV71-SINOS	7036,5803	3,19	1,292	2,916	PostProcessed	
BASE-02-HV75-SINOS	6756,3002	2,166	1,02	1,91	PostProcessed	
BASE-02-HV76-SINOS	6412,909	1,897	0,941	1,647	PostProcessed	
BASE-02-HV77-SINOS	5412,5281	2,417	1,117	2,143	PostProcessed	
BASE-02-HV83-SINOS	2655,6016	1,99	0,987	1,728	PostProcessed	
BASE-02-HV114-SINOS	16212,6331	2,163	0,956	1,94	PostProcessed	
DURAÇÃO E INTERVALO						
Nome	Hora Início	Duração	Tipo antena Base	Alt Antena Base (m)	Tipo Antena Rover	Altura Antena Rover (m)
BASE-02-HV71-SINOS	22/01/2016 18:52	00:20:55	HiPer+	1,5	Legant E	2
BASE-02-HV75-SINOS	22/01/2016 19:22	00:27:45	HiPer+	1,5	Legant E	2
BASE-02-HV76-SINOS	22/01/2016 18:13	00:20:40	HiPer+	1,5	Legant E	2,2
BASE-02-HV77-SINOS	22/01/2016 17:49	00:17:20	HiPer+	1,5	Legant E	2
BASE-02-HV83-SINOS	22/01/2016 17:02	00:21:45	HiPer+	1,5	Legant E	2,6
BASE-02-HV114-SINOS	22/01/2016 15:48	00:29:05	HiPer+	1,5	TPSHIPER_SR	1,55
Nome	Latitude	Longitude	Alt Elip (m)	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão u (m)
BASE-02	29°37'56,585540S	50°59'47,750149W	42,08	0	0	0
PONTOS AJUSTADOS						
Nome	Latitude	Longitude	Alt Elip (m)	Malha Norte (m)	Malha Este (m)	
no data met						

Anexo 8 - Pontos de Apoio Bacia do Rio Sinos O

PROJETO					
Project name: Gravataj_Sinos 23 01 2016.ttp					
Project folder: G:\Dados\Jobs					
Creation time: 30/7/2013 13:17:07					
Created by:					
Comment:					
Linear unit: Meters					
Angular unit: DMS					
Projection: UTMSouth-Zone_22 : 54W to 48W					
Datum: SIRGAS2000					
Geoid:					
AJUSTAMENTO					
COORDENADAS UTM					
Nome	Malha Norte (m)	Malha Este (m)	Alt Elip (m)	Código	
BASE-02	6721948,242	500329,3889	41,9595		
HV20-SINOS	6719133,512	513861,2809	22,1632		
HV21-SINOS	6719135,503	514571,5038	43,7605		
HV22-SINOS	6719279,845	516172,7108	68,408		
HV23-SINOS	6719286,127	517461,0707	46,0637		
HV24-SINOS	6720699,528	518734,7796	26,6715		
HV25-SINOS	6717497,134	520257,1845	27,3503		
HV26-SINOS	6717490,282	521717,6867	36,1673		
HV27-SINOS	6718165,997	523343,4887	30,948		
HV34-SINOS	6722457,324	513192,6214	60,9001		
HV37-SINOS	6722690,13	517252,1171	34,0056		
HV60-SINOS	6721941,332	515842,5393	42,2337		
HV61-SINOS	6721871,094	514615,198	37,7404		
HV62-SINOS	6720294,951	520331,0032	27,0083		
HV64-SINOS	6727688,892	512382,0661	57,0615		
HV65-SINOS	6728677,164	511634,9603	53,7866		
HV66-SINOS	6728246,889	509464,3403	48,8829		
HV67-SINOS	6728920,561	508639,0605	171,9529		
HV68-SINOS	6727162,372	508788,6457	48,4339		
HV69-SINOS	6725027,318	509010,2281	26,5395		
HV70-SINOS	6725674,003	510756,6003	38,9406		
HV72-SINOS	6723873,563	508304,3515	37,7125		
HV73-SINOS	6723127,467	509436,0115	25,3037		
HV74-SINOS	6722213,201	508538,7624	25,5079		
HV78-SINOS	6726144,692	508188,9308	35,0328		
HV79-SINOS	6727443,04	507254,1912	63,6342		
COORDENADAS GEOGRÁFICAS					
Nome	Latitude	Longitude	Alt Elip (m)	Código	
BASE-02	29°37'56,585540S	50°59'47,750149W	41,9595		
HV20-SINOS	29°39'27,758711S	50°51'24,375317W	22,1632		
HV21-SINOS	29°39'27,664724S	50°50'57,955962W	43,7605		
HV22-SINOS	29°39'22,903666S	50°49'58,400759W	68,408		
HV23-SINOS	29°39'22,636757S	50°49'10,476365W	46,0637		
HV24-SINOS	29°38'36,648351S	50°48'23,184533W	26,6715		
HV25-SINOS	29°40'20,608315S	50°47'26,345645W	27,3503		
HV26-SINOS	29°40'20,742029S	50°46'32,008526W	36,1673		
HV27-SINOS	29°39'58,681819S	50°45'31,574509W	30,948		
HV34-SINOS	29°37'39,793378S	50°51'49,394121W	60,9001		
HV37-SINOS	29°37'32,050500S	50°49'18,443850W	34,0056		
HV60-SINOS	29°37'56,446699S	50°50'10,822447W	42,2337		
HV61-SINOS	29°37'58,782893S	50°50'56,463228W	37,7404		
HV62-SINOS	29°38'49,702756S	50°47'23,788131W	27,0083		
HV64-SINOS	29°34'49,847326S	50°52'19,751357W	57,0615		
HV65-SINOS	29°34'17,763679S	50°52'47,559677W	53,7866		
HV66-SINOS	29°34'31,809758S	50°54'08,222243W	48,8829		
HV67-SINOS	29°34'09,943294S	50°54'38,916071W	171,9529		
HV68-SINOS	29°35'07,064222S	50°54'33,305425W	48,4339		
HV69-SINOS	29°36'16,427584S	50°54'25,005039W	26,5395		
HV70-SINOS	29°35'55,366557S	50°53'20,099073W	38,9406		
HV72-SINOS	29°36'53,931322S	50°54'51,217360W	37,7125		
HV73-SINOS	29°37'18,143274S	50°54'09,115306W	25,3037		
HV74-SINOS	29°37'47,871485S	50°54'42,454236W	25,5079		
HV78-SINOS	29°35'40,143970S	50°54'55,570643W	35,0328		
HV79-SINOS	29°34'57,980719S	50°55'30,351388W	63,6342		
DESVIO PADRÃO					
Nome	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão Hz (m)	Desv Padrão u (m)	Código
BASE-02	0	0	0	0	
HV20-SINOS	0,01183	0,00685	0,01367	0,0187	
HV21-SINOS	0,01014	0,00685	0,01224	0,0262	
HV22-SINOS	0,00503	0,00386	0,00634	0,0282	
HV23-SINOS	0,01509	0,01716	0,02285	0,0777	
HV24-SINOS	0,01841	0,01651	0,02473	0,0433	
HV25-SINOS	0,01461	0,0117	0,01872	0,0329	
HV26-SINOS	0,01489	0,00873	0,01726	0,0395	
HV27-SINOS	0,02959	0,0271	0,04013	0,0634	
HV34-SINOS	0,01944	0,02268	0,02987	0,0511	
HV37-SINOS	0,01758	0,0131	0,02193	0,0469	
HV60-SINOS	0,01154	0,0082	0,01415	0,0392	
HV61-SINOS	0,00939	0,00792	0,01229	0,0236	
HV62-SINOS	0,01129	0,0083	0,01401	0,0274	

HV64-SINOS	0,00836	0,00689	0,01083	0,026		
HV65-SINOS	0,00796	0,00614	0,01005	0,0155		
HV66-SINOS	0,00759	0,00458	0,00887	0,0127		
HV67-SINOS	0,00669	0,00365	0,00762	0,0127		
HV68-SINOS	0,00648	0,00505	0,00821	0,0196		
HV69-SINOS	0,00291	0,00343	0,00449	0,0116		
HV70-SINOS	0,00862	0,0081	0,01183	0,0236		
HV72-SINOS	0,00954	0,0078	0,01232	0,0257		
HV73-SINOS	0,01132	0,00975	0,01494	0,0269		
HV74-SINOS	0,00637	0,00634	0,00898	0,0154		
HV78-SINOS	0,00431	0,00394	0,00583	0,0266		
HV79-SINOS	0,01833	0,01126	0,02151	0,0357		
FATOR DE ESCALA						
Nome	Fator de Escala Combinado Proj ao Terr	Convergência	Código			
BASE-02	1,000406747	-0°00'06,0567				
HV20-SINOS	1,000401268	-0°04'15,1405				
HV21-SINOS	1,00040441	-0°04'28,2131				
HV22-SINOS	1,000407672	-0°04'57,6701				
HV23-SINOS	1,000403628	-0°05'21,3824				
HV24-SINOS	1,000400014	-0°05'44,6474				
HV25-SINOS	1,000399388	-0°06'13,0904				
HV26-SINOS	1,000400015	-0°06'39,9902				
HV27-SINOS	1,000398291	-0°07'09,8271				
HV34-SINOS	1,000407574	-0°04'02,5375				
HV37-SINOS	1,000401825	-0°05'17,1411				
HV60-SINOS	1,000403693	-0°04'51,3092				
HV61-SINOS	1,000403449	-0°04'28,7482				
HV62-SINOS	1,000399297	-0°06'14,0668				
HV64-SINOS	1,000407227	-0°03'47,2002				
HV65-SINOS	1,000406934	-0°03'33,4142				
HV66-SINOS	1,00040673	-0°02'53,6271				
HV67-SINOS	1,000426239	-0°02'38,4479				
HV68-SINOS	1,000406812	-0°02'41,2953				
HV69-SINOS	1,000403325	-0°02'45,4913				
HV70-SINOS	1,000404846	-0°03'17,5202				
HV72-SINOS	1,00040523	-0°02'32,5910				
HV73-SINOS	1,000403034	-0°02'53,4323				
HV74-SINOS	1,000403265	-0°02'36,9936				
HV78-SINOS	1,000404833	-0°02'30,3450				
HV79-SINOS	1,000409502	-0°02'13,1203				
PRECISÃO						
Nome	dN (m)	dE (m)	dZ (m)	Precisão Horizontal (m)	Precisão Vertical (m)	
BASE-02-HV20-SINOS	-2814,7299	13531,892	-19,7963	0,0137	0,0187	
BASE-02-HV21-SINOS	-2812,7382	14242,1149	1,801	0,0122	0,0262	
BASE-02-HV22-SINOS	-2668,3962	15843,3219	26,4485	0,0063	0,0282	
BASE-02-HV23-SINOS	-2662,1145	17131,6818	4,1042	0,0228	0,0777	
BASE-02-HV24-SINOS	-1248,7139	18405,3907	-15,288	0,0247	0,0433	
BASE-02-HV25-SINOS	-4451,1073	19927,7956	-14,6092	0,0187	0,0329	
BASE-02-HV26-SINOS	-4457,9598	21388,2978	-5,7922	0,0173	0,0395	
BASE-02-HV27-SINOS	-3782,2447	23014,0999	-11,0115	0,0401	0,0633	
BASE-02-HV34-SINOS	509,0828	12863,2325	18,9406	0,0299	0,0511	
BASE-02-HV37-SINOS	741,8887	16922,7282	-7,9539	0,0219	0,0469	
BASE-02-HV60-SINOS	-6,9091	15513,1504	0,2742	0,0142	0,0392	
BASE-02-HV61-SINOS	-77,1472	14285,8091	-4,2191	0,0123	0,0236	
BASE-02-HV62-SINOS	-1653,2908	20001,6143	-14,9512	0,014	0,0274	
BASE-02-HV64-SINOS	5740,6504	12052,6772	15,102	0,0108	0,026	
BASE-02-HV65-SINOS	6728,9229	11305,5715	11,8271	0,0101	0,0155	
BASE-02-HV66-SINOS	6298,6478	9134,9514	6,9235	0,0089	0,0127	
BASE-02-HV67-SINOS	6972,3199	8309,6716	129,9934	0,0076	0,0127	
BASE-02-HV68-SINOS	5214,1305	8459,2568	6,4744	0,0082	0,0196	
BASE-02-HV69-SINOS	3079,0769	8680,8392	-15,42	0,0045	0,0116	
BASE-02-HV70-SINOS	3725,7611	10427,2114	-3,0189	0,0118	0,0237	
BASE-02-HV72-SINOS	1925,3218	7974,9626	-4,247	0,0123	0,0257	
BASE-02-HV73-SINOS	1179,225	9106,6226	-16,6558	0,0149	0,0269	
BASE-02-HV74-SINOS	264,9592	8209,3735	-16,4516	0,009	0,0154	
BASE-02-HV78-SINOS	4196,4499	7859,542	-6,9267	0,0058	0,0266	
BASE-02-HV79-SINOS	5494,7987	6924,8023	21,6747	0,0215	0,0357	
DISTÂNCIA E PDOP						
Nome	Distancia (m)	PDOP	HDOP	VDOP	Status	
BASE-02-HV20-SINOS	13827,1347	1,406	0,735	1,198	PostProcessed	
BASE-02-HV21-SINOS	14523,0989	1,516	0,719	1,335	PostProcessed	
BASE-02-HV22-SINOS	16073,0296	2,246	0,771	2,109	PostProcessed	
BASE-02-HV23-SINOS	17344,3131	1,883	0,785	1,711	PostProcessed	
BASE-02-HV24-SINOS	18455,1556	1,451	0,708	1,266	PostProcessed	
BASE-02-HV25-SINOS	20427,0922	1,761	0,704	1,614	PostProcessed	
BASE-02-HV26-SINOS	21856,7682	1,769	0,747	1,603	PostProcessed	
BASE-02-HV27-SINOS	23332,2277	1,821	0,707	1,678	PostProcessed	
BASE-02-HV34-SINOS	12878,5599	1,578	0,842	1,335	PostProcessed	
BASE-02-HV37-SINOS	16945,8374	1,867	0,87	1,652	PostProcessed	
BASE-02-HV60-SINOS	15519,4419	2,148	0,97	1,917	PostProcessed	
BASE-02-HV61-SINOS	14291,8081	1,93	0,996	1,653	PostProcessed	
BASE-02-HV62-SINOS	20077,9289	1,684	0,753	1,506	PostProcessed	
BASE-02-HV64-SINOS	13355,4281	2,924	1,287	2,625	PostProcessed	
BASE-02-HV65-SINOS	13161,8916	2,919	1,578	2,456	PostProcessed	
BASE-02-HV66-SINOS	11100,4746	1,866	1,079	1,523	PostProcessed	
BASE-02-HV67-SINOS	10852,5952	3,412	1,913	2,825	PostProcessed	
BASE-02-HV68-SINOS	9941,1561	2,283	0,953	2,075	PostProcessed	

BASE-02-HV69-SINOS	9214,4816	2,618	0,95	2,439	PostProcessed	
BASE-02-HV70-SINOS	11077,3459	2,896	1,254	2,61	PostProcessed	
BASE-02-HV72-SINOS	8207,4101	2,584	1,149	2,315	PostProcessed	
BASE-02-HV73-SINOS	9186,3885	1,994	0,97	1,742	PostProcessed	
BASE-02-HV74-SINOS	8216,9917	2,003	1,002	1,734	PostProcessed	
BASE-02-HV78-SINOS	8913,3094	5,288	1,02	5,189	PostProcessed	
BASE-02-HV79-SINOS	8843,6402	5,666	2,378	5,143	PostProcessed	
DURAÇÃO E INTERVALO						
Nome	Hora Início	Duração	Tipo antena Base	Alt Antena Base (m)	Tipo Antena Rover	Altura Antena Rover (m)
BASE-02-HV20-SINOS	23/01/2016 11:50	00:17:15	TPSHIPER SR	1,604	HiPer+	1,1
BASE-02-HV21-SINOS	23/01/2016 12:20	00:14:30	TPSHIPER SR	1,604	HiPer+	2,5
BASE-02-HV22-SINOS	23/01/2016 12:45	00:20:55	TPSHIPER SR	1,604	HiPer+	1,5
BASE-02-HV23-SINOS	23/01/2016 13:11	00:21:00	TPSHIPER SR	1,604	HiPer+	1,51
BASE-02-HV24-SINOS	23/01/2016 16:57	00:20:45	TPSHIPER SR	1,604	HiPer+	1,5
BASE-02-HV25-SINOS	23/01/2016 18:09	00:15:10	TPSHIPER SR	1,604	HiPer+	1,5
BASE-02-HV26-SINOS	23/01/2016 19:06	00:17:50	TPSHIPER SR	1,604	HiPer+	1,73
BASE-02-HV27-SINOS	23/01/2016 18:32	00:20:55	TPSHIPER SR	1,604	HiPer+	1,45
BASE-02-HV34-SINOS	23/01/2016 13:53	00:21:55	TPSHIPER SR	1,604	HiPer+	1,8
BASE-02-HV37-SINOS	23/01/2016 16:15	00:19:35	TPSHIPER SR	1,604	HiPer+	2,55
BASE-02-HV60-SINOS	23/01/2016 15:46	00:18:20	TPSHIPER SR	1,604	HiPer+	2
BASE-02-HV61-SINOS	23/01/2016 15:13	00:21:55	TPSHIPER SR	1,604	HiPer+	2,05
BASE-02-HV62-SINOS	23/01/2016 17:26	00:20:35	TPSHIPER SR	1,604	HiPer+	1,55
BASE-02-HV64-SINOS	23/01/2016 15:28	00:38:15	TPSHIPER SR	1,604	Legant E	2
BASE-02-HV65-SINOS	23/01/2016 14:46	00:34:30	TPSHIPER SR	1,604	Legant E	2
BASE-02-HV66-SINOS	23/01/2016 11:52	00:20:40	TPSHIPER SR	1,604	Legant E	4
BASE-02-HV67-SINOS	23/01/2016 11:22	00:21:05	TPSHIPER SR	1,604	Legant E	2
BASE-02-HV68-SINOS	23/01/2016 12:20	00:20:30	TPSHIPER SR	1,604	Legant E	2
BASE-02-HV69-SINOS	23/01/2016 13:22	00:21:05	TPSHIPER SR	1,604	Legant E	2
BASE-02-HV70-SINOS	23/01/2016 16:18	00:32:45	TPSHIPER SR	1,604	Legant E	2
BASE-02-HV72-SINOS	23/01/2016 17:28	00:21:55	TPSHIPER SR	1,604	Legant E	2
BASE-02-HV73-SINOS	23/01/2016 17:00	00:20:05	TPSHIPER SR	1,604	Legant E	2,4
BASE-02-HV74-SINOS	23/01/2016 18:00	00:22:20	TPSHIPER SR	1,604	Legant E	2
BASE-02-HV78-SINOS	23/01/2016 12:56	00:17:35	TPSHIPER SR	1,604	Legant E	2
BASE-02-HV79-SINOS	23/01/2016 10:53	00:20:55	TPSHIPER SR	1,604	Legant E	3,5
PONTO DE CONTROLE						
Nome	Latitude	Longitude	Alt Elip (m)	Desv Padrão n (m)	Desv Padrão e (m)	Desv Padrão u (m)
BASE-02	29°37'56,585540S	50°59'47,750149W	41,9595	0	0	0
PONTOS AJUSTADOS						
Nome	Latitude	Longitude	Alt Elip (m)	Malha Norte (m)	Malha Este (m)	
no data met						

ANEXO 9 - MONOGRAFIA DOS MARCOS

MONOGRAFIA – BASE 02

ESTAÇÃO: BASE 02	COORDENADAS NO DATUM SIRGAS 2000 MERIDIANO CENTRAL: 51° W. GR	
LOCALIZAÇÃO	COORDENADAS GEOGRÁFICAS	COORDENADAS UTM
Estado: Rio Grande do Sul	LAT: 29°37'56,585547"S	N: 6.721.948,241 m
Município: Sapiranga	LON: 50°59'47,750149"W	E: 500.329,3889 m
Localidade:	Ondulação Geoidal (N): 4,77 m	H (ORTO): 37,18 m (*)
Data do rastreio: 22/01/2016	(*) Map Geo 2015	H (GEOM): 41,95 m
Descrição do Marco: Chapa de alumínio com as seguintes descrições: "PROTEGIDO POR LEI – AEROSAT – BASE02".		
LOCALIZAÇÃO DO MARCO		MARCO
		
		FOTO DA LOCALIZAÇÃO DO MARCO

MONOGRAFIA – MR03

ESTAÇÃO: MR03	COORDENADAS NO DATUM SIRGAS 2000 MERIDIANO CENTRAL: 51° W. GR	
LOCALIZAÇÃO	COORDENADAS GEOGRÁFICAS	COORDENADAS UTM
Estado: Rio Grande do Sul	LAT: 29°44'11,416614"S	N: 6.710.402,027 m
Município: São Leopoldo	LON: 51°09'01,202278"W	E: 485.462,477 m
Localidade:	Ondulação Geoidal (N): 4,82 m	H (ORTO): 17,313 m (*)
Data do rastreio: 16/01/2016	(*) Nivelada a partir da RN1776L	H (GEOM): 12,086m
Descrição do Marco: Chapa de alumínio com as seguintes descrições: "PROTEGIDO POR LEI – AEROSAT – MR03"		
LOCALIZAÇÃO DO MARCO	MARCO	
		
	FOTO DA LOCALIZAÇÃO DO MARCO 	

MONOGRAFIA – MR 04

ESTAÇÃO: MR 04	COORDENADAS NO DATUM SIRGAS 2000 MERIDIANO CENTRAL: 51° W. GR	
LOCALIZAÇÃO	COORDENADAS GEOGRÁFICAS	COORDENADAS UTM
Estado: Rio Grande do Sul	LAT: 29°37'56,585547"S	N: 6.721.948,241 m
Município: Taquara	LON: 50°59'47,750149"W	E: 500.329,3889 m
Localidade: Cruzeiro do Sul	Ondulação Geoidal (N): 4,77 m	H (ORTO): 37,18 m (*)
Data do rastreio: 22/01/2016	(*) Map Geo 2015	H (GEOM): 41,95 m
Descrição do Marco: Chapa de alumínio com as seguintes descrições: "PROTEGIDO POR LEI – AEROSAT – MR04".		
LOCALIZAÇÃO DO MARCO	MARCO	
		
	FOTO LOCALIZAÇÃO DO MARCO 	

ANEXO 10 - DADOS DA AEROTRIANGULAÇÃO

DADOS AEROTRIANGULAÇÃO – CARAÁ

Number of photos : 15

Number of strips : 1

Photo scale : 1:39858

Mean terrain height [m] : 55

Automatic blunder detection : OFF

Use all adjusted points in project file
as control (absolute mode) : OFF

Control parameter for block adjustment :

Selfcalibration : ON

Number of selfcalibration parameters : 44

Write calibrated camera to project : OFF

GNSS-Mode : ON

Drift-Mode : ON

drift per block : ON only shifts are enabled

drift for X,Y,Z : ON,ON,ON

IMU-Mode : OFF

Earth's curvature correction : ON

Atmospheric correction : ON

Do not eliminate manual points : OFF

Do not eliminate GNSS : ON

Standard deviations (a-priori) :

Ground control (planimetry) [m]

Set		
0 (=default)	:	0.042
1	:	10000.000

Ground control (height) [m]

Set		
0 (=default)	:	0.143
1	:	10000.000

Automatic image points [mm]

Set		
0 (=default)	:	0.002

Image points of ground control and manual measurements [mm] : 0.002

GNSS X Y Z [m] : 0.100 0.100 0.100

Used Cameras in block:

1 PHASEONE_NEW_CALIBRATION

Distortion

: Table

Tie Point Generator

created	68 observations for photo	55657
created	125 observations for photo	55658
created	123 observations for photo	55659
created	116 observations for photo	55660
created	122 observations for photo	55661
created	135 observations for photo	55662
created	149 observations for photo	55663
created	160 observations for photo	55664
created	129 observations for photo	55665
created	140 observations for photo	55666
created	105 observations for photo	55667
created	158 observations for photo	55668
created	135 observations for photo	55669
created	122 observations for photo	55670
created	77 observations for photo	55671

total of 1864 measurements in 15 photos are used for adjustment (total 15 photos)

sigma naught 0.6 micron (10:06:09)

sigma naught 0.6 micron (10:06:09)

found 98 points connecting 2 photos

found 288 points connecting 3 photos

found 201 points connecting 4 photos

number of observations 3788

number of unknowns 1901

redundancy 1887

additional selfcalibration parameters - camera 1

parameter number	value	standardized residual	lower bound of determinability
1	-0.2	-0.6	1.6
2	-2.2	-7.8	1.2
3	-0.3	-1.9	0.6
4	0.2	2.8	0.4

5	-0.5	-1.4	1.5
6	0.3	0.6	1.7
7	0.3	1.0	1.1
8	-1.4	-13.6	0.4
9	0.8	6.6	0.5
10	-0.1	-2.2	0.2
11	-0.1	-0.2	1.3
12	0.2	0.3	2.5
13	-1.4	-8.5	0.7
14	0.4	6.6	0.2
15	0.2	1.5	0.7
16	-0.1	-1.3	0.4
17	-0.2	-1.6	0.4
18	-0.1	-1.5	0.3
19	0.0	0.7	0.2
20	-0.2	-0.7	1.0
21	0.0	0.0	2.5
22	-0.1	-0.8	0.6
23	0.1	1.7	0.4
24	-0.0	-0.2	0.3
25	-0.2	-2.4	0.4
26	0.5	4.8	0.5
27	-0.0	-0.5	0.2
28	0.3	3.2	0.4
29	0.6	1.3	1.9
30	-0.2	-1.4	0.7
31	0.1	1.5	0.3
32	-0.1	-0.7	0.4
33	0.1	0.5	0.5
34	0.1	2.0	0.3
35	-0.1	-1.8	0.3
36	0.0	0.1	0.6
37	-0.1	-1.8	0.3

38	-0.0	-0.0	0.4
39	-0.1	-0.8	0.2
40	0.2	2.1	0.3
41	0.3	3.4	0.3
42	-0.2	-1.5	0.5
43	0.0	0.0	0.3
44	-0.0	-0.2	0.4

corrections on 25 grid points in micron

-3.85	0.07	0.43	-1.07	-2.38
3.13	1.41	1.32	-0.58	-2.70
-0.67	-0.47	-0.03	-0.63	-2.33
-0.14	0.63	-0.03	-0.79	-1.54
0.54	-0.04	-0.00	-0.48	-1.08
-0.43	0.27	0.08	-0.01	-0.72
1.87	0.51	0.07	-0.37	0.64
0.54	0.90	0.53	0.20	-1.01
1.70	1.50	1.15	0.57	4.36
2.22	2.04	0.01	-0.69	-4.66

RMS automatic points in photo (number: 1848)

x 0.5 micron
y 0.3 micron

RMS control and manual points in photo (number: 16)

x 1.4 micron
y 0.5 micron

RMS control points with default standard deviation set (number: 5)

x 0.004 [meter]
y 0.002 [meter]

RMS control points with default standard deviation set (number: 5)

z 0.011 [meter]

RMS GNSS observations (number: 15)

x 0.014 [meter]
y 0.018 [meter]
z 0.028 [meter]

sigma naught 0.6 micron (10:06:11)

standard deviations of exterior orientation parameters (px, py, pz in [meter] omega,phi,kappa in [deg/1000])

photo ID	px	py	pz	omega	phi	kappa
55657	0.072	0.139	0.042	2.69934	3.23183	2.60244
55658	0.071	0.138	0.038	2.56079	3.24841	2.10003
55659	0.071	0.138	0.037	2.59169	3.25695	1.67047
55660	0.070	0.136	0.036	2.55870	3.30781	1.29790
55661	0.069	0.137	0.035	2.56749	3.38411	0.99347
55662	0.069	0.137	0.035	2.63193	3.45356	0.90751
55663	0.070	0.139	0.035	2.75813	3.52222	0.93887
55664	0.069	0.136	0.035	2.71093	3.48504	0.94517
55665	0.070	0.138	0.036	2.77465	3.54317	0.99166
55666	0.069	0.138	0.035	2.75290	3.53273	1.08053
55667	0.070	0.136	0.036	2.70032	3.53029	1.12410

55668	0.070	0.138	0.036	2.68951	3.59160	1.44264
55669	0.070	0.138	0.037	2.69345	3.55198	1.79303
55670	0.070	0.139	0.039	2.76403	3.56959	2.20879
55671	0.072	0.139	0.042	2.89693	3.60920	2.62067

mean standard deviations of rotations

omega 2.7 [deg/1000]

phi 3.5 [deg/1000]

kappa 1.5 [deg/1000]

max standard deviations of rotations

omega 2.9 [deg/1000] at photo 55671

phi 3.6 [deg/1000] at photo 55671

kappa 2.6 [deg/1000] at photo 55671

mean standard deviations of translations

x 0.070 [meter]

y 0.138 [meter]

z 0.037 [meter]

max standard deviations of translations

x 0.072 [meter] at photo 55657

y 0.139 [meter] at photo 55671

z 0.042 [meter] at photo 55657

residuals horizontal control points in [meter]

control point ID	rx	ry
------------------	----	----

HV01_Sinos	0.004	-0.000
HV02_Sinos	0.003	-0.003
HV03_Sinos	-0.001	0.003
HV04_Sinos	-0.001	-0.000
HV05_Sinos	-0.006	-0.000

residuals vertical control points in [meter]

control point ID	rz
HV01_Sinos	0.010
HV02_Sinos	-0.007
HV03_Sinos	0.015
HV04_Sinos	-0.006
HV05_Sinos	-0.012

residuals GNSS observations in [meter]

photo ID	rx	ry	rz
----------	----	----	----

GNSS drift parameter for profile 1

constant part in [meter] X -1.868 Y 0.735 Z 3.847
linear part in [meter] X 0.000 Y -0.000 Z -0.000

55657	0.003	0.001	-0.036
55658	0.009	0.010	-0.009
55659	0.018	-0.005	0.011
55660	-0.023	0.012	0.048
55661	0.008	-0.047	0.037

55662	-0.015	-0.018	-0.045
55663	0.014	0.024	-0.046
55664	0.006	-0.006	0.024
55665	-0.009	0.003	-0.001
55666	0.008	0.020	0.020
55667	-0.011	0.001	0.014
55668	0.009	0.020	-0.002
55669	0.016	-0.005	0.023
55670	-0.030	-0.021	-0.009
55671	-0.003	0.011	-0.030

max standard deviations of terrain points

x	0.096 [meter] at point	30000250
y	0.092 [meter] at point	30000528
z	0.208 [meter] at point	30000250

mean standard deviations of terrain points

x	0.032
y	0.039
z	0.113

exterior orientation parameters (px, py, pz in [meter] omega,phi,kappa in [deg])

rotations from terrain to photo (rotated axes)

photo ID	px	py	pz	omega	phi	kappa
55657	552732.378	6705537.878	2252.646	1.42833	0.73740	-118.24665
55658	553168.502	6705335.329	2250.816	0.82364	0.35436	-117.85758

55659	553587.661	6705140.555	2252.905	0.93951	0.47923	-118.42656
55660	553991.929	6704952.121	2251.016	1.69589	0.25794	-117.60419
55661	554397.940	6704763.839	2252.532	0.22098	0.08048	-117.21792
55662	554800.786	6704579.896	2255.084	0.26897	1.43787	-116.45849
55663	555207.739	6704398.153	2253.550	-0.05246	1.09035	-116.41627
55664	555613.516	6704220.832	2255.983	1.31305	0.52097	-116.23552
55665	556023.111	6704043.653	2252.596	1.03289	1.23622	-115.89658
55666	556435.825	6703867.895	2252.906	0.54075	0.35888	-115.40066
55667	556848.950	6703694.321	2254.693	1.29588	1.15181	-115.35252
55668	557265.417	6703519.843	2250.844	1.00694	0.80114	-115.10568
55669	557681.767	6703346.345	2252.935	1.26923	0.36442	-115.07332
55670	558097.367	6703172.962	2251.634	1.53554	0.84905	-115.22502
55671	558513.688	6702997.736	2253.041	0.94021	0.55217	-115.56407

=====

=

Sigma naught : 0.6 [micron] = 0.1 [pixel in level 0]

DADOS AEROTRIANGULAÇÃO - ROLANTE

Number of photos	: 52
Number of strips	: 2
Photo scale	: 1:38441
Mean terrain height [m]	: 128
Automatic blunder detection	: OFF
Use all adjusted points in project file as control (absolute mode)	: OFF
Control parameter for block adjustment : -----	
Selfcalibration	: ON
Number of selfcalibration parameters	: 44
Write calibrated camera to project	: OFF
GNSS-Mode	: ON
Drift-Mode	: ON
drift per strip	: ON
drift for X,Y,Z	: ON,ON,ON
enable shifts only	: OFF
IMU-Mode	: OFF
Earth's curvature correction	: ON
Atmospheric correction	: ON
Do not eliminate manual points	: OFF
Do not eliminate GNSS	: ON

Standard deviations (a-priori) :

Ground control (planimetry) [m]

Set

0 (=default)	: 0.036
1	: 10000.000

Ground control (height) [m]

Set

0 (=default)	: 0.122
1	: 10000.000

Automatic image points [mm]

Set

0 (=default)	: 0.002
--------------	---------

Image points of ground control and manual measurements [mm] : 0.002

GNSS X Y Z [m] : 0.100 0.100 0.100

Used Cameras in block:

1 PHASEONE_NEW_CALIBRATION

Distortion

: Table

Tie Point Generator

created	74 observations for photo	55543
created	125 observations for photo	55544
created	146 observations for photo	55545
created	169 observations for photo	55546
created	191 observations for photo	55547
created	183 observations for photo	55548
created	148 observations for photo	55549
created	175 observations for photo	55550
created	202 observations for photo	55551
created	193 observations for photo	55552
created	197 observations for photo	55553
created	211 observations for photo	55554
created	197 observations for photo	55555
created	242 observations for photo	55556
created	235 observations for photo	55557
created	220 observations for photo	55558
created	203 observations for photo	55559
created	172 observations for photo	55560
created	190 observations for photo	55561

created	197 observations for photo	55562
created	205 observations for photo	55563
created	239 observations for photo	55564
created	225 observations for photo	55565
created	209 observations for photo	55566
created	199 observations for photo	55567
created	131 observations for photo	55568
created	3 observations for photo	55569 ??????
created	88 observations for photo	55570
created	176 observations for photo	55571
created	229 observations for photo	55572
created	205 observations for photo	55573
created	185 observations for photo	55574
created	152 observations for photo	55575
created	151 observations for photo	55576
created	157 observations for photo	55577
created	168 observations for photo	55578
created	174 observations for photo	55579
created	180 observations for photo	55580
created	210 observations for photo	55581
created	200 observations for photo	55582
created	197 observations for photo	55583
created	183 observations for photo	55584
created	171 observations for photo	55585
created	164 observations for photo	55586
created	173 observations for photo	55587
created	149 observations for photo	55588
created	152 observations for photo	55589
created	159 observations for photo	55590
created	171 observations for photo	55591
created	183 observations for photo	55592
created	172 observations for photo	55593
created	120 observations for photo	55594

total of 9150 measurements in 52 photos are used for adjustment (total 52 photos)

sigma naught 0.8 micron (09:19:05)

sigma naught 0.8 micron (09:19:06)

- found 186 points connecting 2 photos
- found 655 points connecting 3 photos
- found 827 points connecting 4 photos
- found 105 points connecting 5 photos
- found 183 points connecting 6 photos
- found 158 points connecting 7 photos
- found 97 points connecting 8 photos

number of observations 18483

number of unknowns 7001

redundancy 11482

additional selfcalibration parameters - camera 1

parameter	value	standardized	lower bound of
number		residual	determinability

1	0.2	0.7	0.9
2	0.6	3.2	0.7
3	-0.3	-5.7	0.2
4	0.3	7.9	0.2
5	-2.3	-9.1	1.0
6	-0.8	-2.7	1.2
7	0.2	2.2	0.4
8	-0.7	-12.2	0.2
9	1.3	25.0	0.2
10	-0.0	-1.3	0.1
11	0.1	0.6	0.4
12	-0.7	-3.5	0.9
13	-0.6	-8.2	0.3
14	0.6	22.0	0.1
15	0.1	2.4	0.3
16	-0.5	-13.0	0.2
17	0.1	1.6	0.2
18	-0.2	-7.0	0.1
19	0.1	1.9	0.1
20	0.2	3.6	0.3
21	0.4	2.5	0.6
22	-0.2	-3.5	0.3
23	-0.0	-1.5	0.1
24	-0.0	-0.7	0.2
25	0.1	2.4	0.1
26	0.9	20.3	0.2
27	0.0	1.3	0.1
28	0.5	12.2	0.2
29	0.7	8.0	0.4
30	-0.1	-1.1	0.2
31	0.2	7.0	0.1
32	0.1	2.4	0.2
33	-0.1	-1.7	0.2

34	-0.0	-0.7	0.1
35	-0.0	-0.7	0.2
36	-0.1	-2.9	0.2
37	-0.0	-0.5	0.1
38	0.0	0.0	0.2
39	0.0	0.2	0.1
40	0.2	6.2	0.1
41	0.4	13.2	0.1
42	-0.1	-1.7	0.2
43	-0.0	-0.8	0.1
44	-0.1	-2.7	0.2

corrections on 25 grid points in micron

-0.81	0.80	0.95	0.60	2.00
-1.96	2.21	4.15	0.66	-3.33
1.10	-0.27	0.16	0.09	-0.83
-3.93	0.65	2.32	0.39	-2.85
1.15	-0.62	-0.48	-0.45	-0.90
-3.34	0.20	2.04	1.16	-1.06
1.33	-0.57	-1.12	-1.24	-0.49
-1.88	0.62	2.33	1.67	-0.09
-1.47	0.02	-1.29	-1.38	3.72
-2.28	0.76	1.27	1.93	-1.64

RMS automatic points in photo (number: 9112)

x 0.6 micron
y 0.6 micron

RMS control and manual points in photo (number: 38)

x 0.7 micron
y 1.4 micron

RMS control points with default standard deviation set (number: 9)

x 0.010 [meter]
y 0.010 [meter]

RMS control points with default standard deviation set (number: 9)

z 0.033 [meter]

RMS GNSS observations (number: 52)

x 0.023 [meter]
y 0.026 [meter]
z 0.035 [meter]

sigma naught 0.8 micron (09:19:09)

standard deviations of exterior orientation parameters (px, py, pz in [meter] omega,phi,kappa in [deg/1000])

photo ID	px	py	pz	omega	phi	kappa
55543	0.131	0.136	0.101	2.85076	4.78930	1.71116
55544	0.122	0.128	0.093	2.58656	4.42227	1.39946
55545	0.116	0.121	0.085	2.44316	4.14733	1.21654
55546	0.111	0.113	0.079	2.26356	3.91602	1.07534
55547	0.107	0.106	0.072	2.10674	3.73802	0.96717
55548	0.102	0.102	0.066	2.04572	3.53075	0.91633
55549	0.099	0.097	0.060	1.99120	3.32446	0.84160

55550	0.096	0.090	0.054	1.83762	3.13552	0.72014
55551	0.093	0.086	0.049	1.76866	3.01188	0.62893
55552	0.093	0.083	0.044	1.66300	2.96219	0.56321
55553	0.091	0.080	0.040	1.55656	2.90256	0.51204
55554	0.091	0.077	0.036	1.46757	2.88830	0.49730
55555	0.092	0.077	0.034	1.45026	2.90015	0.51049
55556	0.093	0.075	0.033	1.38089	2.92786	0.50561
55557	0.095	0.077	0.033	1.41462	2.96283	0.51648
55558	0.098	0.078	0.035	1.40976	3.07437	0.52989
55559	0.101	0.080	0.037	1.41051	3.17156	0.55404
55560	0.105	0.083	0.041	1.46813	3.32095	0.56216
55561	0.109	0.087	0.045	1.50187	3.48805	0.63167
55562	0.113	0.091	0.050	1.55363	3.61294	0.66176
55563	0.120	0.096	0.056	1.63154	3.83566	0.72188
55564	0.125	0.100	0.061	1.65581	4.01126	0.76744
55565	0.131	0.106	0.067	1.72734	4.21129	0.84357
55566	0.138	0.113	0.074	1.83847	4.44099	0.92144
55567	0.144	0.118	0.081	1.94607	4.63536	1.00338
55568	0.151	0.126	0.088	2.12265	4.89681	1.17552
55569	0.161	0.134	0.100	3.02467	5.48642	7.04346
55570	0.141	0.162	0.101	2.94366	4.87008	1.40167
55571	0.131	0.152	0.092	2.75255	4.48611	1.13487
55572	0.123	0.146	0.084	2.67088	4.23858	1.03847
55573	0.116	0.137	0.075	2.51629	3.99717	0.95341
55574	0.109	0.131	0.068	2.42752	3.77944	0.92240
55575	0.102	0.123	0.061	2.31167	3.53925	0.78943
55576	0.096	0.116	0.054	2.20763	3.30700	0.71932
55577	0.090	0.111	0.048	2.13794	3.11133	0.65449
55578	0.084	0.104	0.043	2.02663	2.88214	0.62904
55579	0.081	0.098	0.039	1.93552	2.71087	0.56628
55580	0.079	0.093	0.036	1.86555	2.58839	0.59963
55581	0.077	0.089	0.035	1.81963	2.48788	0.60724
55582	0.077	0.087	0.036	1.79106	2.44448	0.60249
55583	0.077	0.084	0.038	1.71688	2.42492	0.53669
55584	0.081	0.083	0.041	1.68048	2.48637	0.59321
55585	0.083	0.081	0.045	1.65682	2.50393	0.56268
55586	0.089	0.082	0.051	1.63655	2.65622	0.60685
55587	0.093	0.081	0.057	1.60386	2.73546	0.67864
55588	0.098	0.084	0.063	1.64487	2.90636	0.75310

55589	0.105	0.086	0.069	1.66913	3.08536	0.87044
55590	0.110	0.088	0.074	1.69925	3.26633	0.93868
55591	0.118	0.095	0.080	1.87134	3.56311	1.04868
55592	0.124	0.098	0.087	1.91245	3.77388	1.13231
55593	0.133	0.102	0.094	2.04002	4.06871	1.30941
55594	0.141	0.108	0.101	2.24540	4.36345	1.54689

mean standard deviations of rotations

omega	1.9 [deg/1000]
phi	3.5 [deg/1000]
kappa	0.9 [deg/1000]

max standard deviations of rotations

omega	3.0 [deg/1000] at photo	55569
phi	5.5 [deg/1000] at photo	55569
kappa	7.0 [deg/1000] at photo	55569

mean standard deviations of translations

x	0.107 [meter]
y	0.102 [meter]
z	0.061 [meter]

max standard deviations of translations

x	0.161 [meter] at photo	55569
y	0.162 [meter] at photo	55570
z	0.101 [meter] at photo	55594

residuals horizontal control points in [meter]

control point ID	rx	ry
HV06_Sinos	0.003	0.005
HV07_Sinos	0.009	-0.006
HV08_Sinos	0.003	0.005
HV09_Sinos	0.015	0.020
HV10_Sinos	-0.001	-0.013
HV11_Sinos	0.006	0.001
HV12_Sinos	-0.002	0.002
HV13_Sinos	-0.013	0.001
HV14_Sinos	-0.021	-0.014

residuals vertical control points in [meter]

control point ID	rz
HV06_Sinos	0.020
HV07_Sinos	0.048
HV08_Sinos	-0.052
HV09_Sinos	0.025
HV10_Sinos	-0.026
HV11_Sinos	0.025
HV12_Sinos	0.019
HV13_Sinos	-0.040
HV14_Sinos	-0.019

residuals GNSS observations in [meter]

photo ID	rx	ry	rz
GNSS drift parameter for profile 1			
constant part in [meter]	X -0.751	Y 0.444	Z 4.352
linear part in [meter]	X -0.171	Y 0.406	Z -0.630
55543	-0.000	-0.015	-0.054
55544	-0.043	-0.006	0.010
55545	0.021	-0.029	0.000
55546	0.052	0.019	0.024
55547	-0.001	0.004	0.016
55548	0.019	0.061	0.011
55549	-0.020	0.030	0.013
55550	0.010	0.020	0.006
55551	0.009	-0.022	0.001
55552	-0.017	-0.019	-0.049
55553	0.013	-0.030	-0.021
55554	-0.004	-0.012	-0.018
55555	-0.028	-0.049	-0.031
55556	-0.018	0.033	-0.002
55557	0.001	-0.002	0.011
55558	0.011	0.031	0.043

55559	-0.043	0.004	0.026
55560	0.006	-0.041	0.024
55561	-0.004	-0.005	0.014
55562	-0.002	-0.023	0.022
55563	0.015	0.030	0.022
55564	0.002	0.017	0.024
55565	-0.006	-0.007	0.025
55566	0.002	0.022	-0.005
55567	0.005	0.021	-0.037
55568	0.021	-0.031	-0.074
55569	-0.000	0.000	0.000

GNSS drift parameter for profile 2

constant part in [meter] X -1.573 Y -2.856 Z 4.220

linear part in [meter] X 0.176 Y -0.294 Z 0.434

55570	-0.045	-0.000	0.089
55571	-0.012	-0.021	0.063
55572	0.007	0.001	-0.019
55573	-0.025	-0.015	-0.008
55574	-0.001	-0.016	-0.047
55575	0.028	-0.013	-0.040
55576	0.015	0.009	-0.030
55577	0.022	0.001	-0.051
55578	0.020	-0.035	-0.051
55579	0.032	0.075	-0.023
55580	-0.010	0.042	0.025
55581	-0.012	-0.009	0.020
55582	-0.050	-0.012	0.023
55583	0.042	-0.044	0.071
55584	0.028	0.030	-0.038
55585	0.028	0.035	-0.025
55586	0.016	0.031	-0.039

55587	-0.022	0.021	0.000
55588	0.011	-0.003	-0.001
55589	-0.049	-0.015	0.014
55590	-0.002	0.006	0.081
55591	-0.009	-0.016	0.031
55592	-0.035	-0.026	0.010
55593	0.005	-0.026	-0.003
55594	0.018	0.001	-0.053

max standard deviations of terrain points

x	0.416 [meter] at point	20000015
y	0.112 [meter] at point	20000010
z	0.865 [meter] at point	20000015

mean standard deviations of terrain points

x	0.033
y	0.032
z	0.102

exterior orientation parameters (px, py, pz in [meter] omega,phi,kappa in [deg])

rotations from terrain to photo (rotated axes)

	photo ID	px	py	pz	omega	phi	kappa
55543	545338.207	6725071.201	2241.475	0.67347	-1.77708	138.01957	
55544	545032.372	6724752.971	2244.845	-0.10033	-1.84228	136.97684	
55545	544727.168	6724444.355	2243.245	0.80262	-2.12825	137.68360	
55546	544421.508	6724136.098	2242.780	0.27763	-1.15310	136.84247	

55547	544118.383	6723830.533	2244.036	1.02566	-1.66580	137.53019
55548	543816.534	6723519.547	2242.476	1.13192	-0.45126	138.21834
55549	543523.261	6723203.805	2246.204	1.85770	-0.44813	139.83969
55550	543235.586	6722881.552	2243.327	1.80031	-0.81162	139.93815
55551	542950.792	6722554.181	2245.090	1.40933	-0.22979	140.92051
55552	542668.707	6722225.456	2244.699	1.82923	-1.01375	139.99681
55553	542386.990	6721899.699	2243.090	0.96162	-0.59626	139.58523
55554	542101.649	6721574.172	2246.153	1.35060	-0.61829	139.28648
55555	541813.644	6721246.902	2245.666	1.38918	-0.82807	139.21388
55556	541526.342	6720923.111	2247.799	0.82979	-0.64912	137.87235
55557	541237.283	6720604.619	2249.610	1.41900	-1.32004	138.33198
55558	540944.508	6720285.110	2247.318	0.89178	-1.03488	137.83354
55559	540653.061	6719970.431	2248.613	1.02375	-1.13414	137.77036
55560	540357.573	6719654.259	2246.607	0.91732	-1.37671	137.36595
55561	540060.659	6719341.496	2248.521	1.09469	-0.43025	137.19660
55562	539764.552	6719027.353	2248.705	1.33530	-1.37905	137.81838
55563	539468.414	6718709.668	2247.135	1.04340	-0.50207	138.18557
55564	539178.422	6718394.390	2249.551	1.12662	-1.05455	138.38815
55565	538888.502	6718078.643	2247.394	0.74036	-1.16240	138.42725
55566	538595.649	6717761.694	2250.185	0.75175	-0.88571	138.20093
55567	538303.638	6717446.737	2249.866	0.91922	-1.46968	137.90885
55568	538008.751	6717131.238	2250.893	0.74035	-0.84742	137.76614
55569	537704.701	6716829.156	2251.036	-7.77675	5.03965	132.14296
55570	538603.166	6715776.729	2250.576	-0.91450	1.63144	-41.06483
55571	538947.580	6716143.936	2253.255	-0.51823	1.96198	-41.01601
55572	539282.915	6716499.443	2249.756	-1.49005	2.05247	-41.15386
55573	539620.682	6716855.949	2248.006	-0.36768	1.46322	-41.64269
55574	539961.709	6717212.645	2249.311	-1.30291	1.70459	-41.79385
55575	540302.906	6717568.369	2245.589	-0.55336	2.00123	-42.13772
55576	540648.311	6717924.071	2248.937	-0.67346	1.37243	-42.45566
55577	540991.310	6718275.325	2247.020	-1.47536	1.82015	-42.68246
55578	541334.220	6718627.854	2247.483	-1.20999	0.36547	-41.95104
55579	541674.555	6718984.458	2248.489	-1.28249	2.16233	-41.50390
55580	542019.231	6719347.588	2243.235	-0.86010	1.21860	-41.14570
55581	542359.666	6719709.383	2245.697	-0.88115	1.00859	-41.03265
55582	542694.048	6720068.435	2244.995	-1.24740	0.75188	-40.77581
55583	543020.015	6720423.978	2246.596	-0.50757	0.86664	-40.40542
55584	543341.605	6720778.674	2247.781	-1.77687	-0.04304	-39.99372
55585	543658.482	6721137.214	2246.692	-0.79971	0.96569	-39.34498

55586	543970.340	6721494.034	2248.747	-0.82506	-0.01560	-38.83396
55587	544276.521	6721850.875	2250.038	-0.93421	1.18383	-38.39071
55588	544578.088	6722204.977	2247.872	-0.75549	0.85924	-38.31605
55589	544852.689	6722530.020	2249.917	-0.65756	0.40252	-38.14411
55590	545122.838	6722852.303	2249.099	0.29105	3.00823	-38.32047
55591	545398.975	6723173.756	2247.877	0.11813	1.06838	-39.10265
55592	545676.198	6723491.115	2250.707	0.04165	1.63033	-39.66289
55593	545956.561	6723806.247	2248.408	-0.42099	1.83891	-40.28491
55594	546240.907	6724121.343	2248.004	-0.26565	0.61102	-40.75384

=====

=

WARNING: Less than 11 measured points in following photo(s):

55569: 3 points

WARNING: Suspect orientation angle(s) (> 4.50000 [deg]) in following photo(s):

photo	omega	phi	kappa
-------	-------	-----	-------

55569	-7.77675	5.03965	132.14296
-------	----------	---------	-----------

Sigma naught : 0.8 [micron] = 0.1 [pixel in level 0]

DADOS DA AEROTRIANGULAÇÃO TAQUARA TRÊS COROAS

Number of photos : 344

Number of strips : 8

Photo scale : 1:38843

Mean terrain height [m] : 103

Automatic blunder detection : OFF

Use all adjusted points in project file
as control (absolute mode) : OFF

Control parameter for block adjustment :

Selfcalibration : ON

Number of selfcalibration parameters : 44

Write calibrated camera to project : OFF

GNSS-Mode : ON

Drift-Mode : ON

drift per strip : ON

drift for X,Y,Z : ON,ON,ON

enable shifts only : OFF

IMU-Mode : OFF

Earth's curvature correction : ON

Atmospheric correction : ON

Do not eliminate manual points : OFF

Do not eliminate GNSS : ON

Standard deviations (a-priori) :

Ground control (planimetry) [m]

Set
0 (=default) : 0.038
1 : 10000.000

Ground control (height) [m]

Set
0 (=default) : 0.131
1 : 10000.000

Automatic image points [mm]

Set
0 (=default) : 0.002

Image points of ground control and manual measurements [mm] : 0.002

GNSS X Y Z [m] : 0.100 0.100 0.100

Used Cameras in block:

1 PHASEONE_NEW_CALIBRATION

Distortion

: Table

Tie Point Generator

created	29 observations for photo	55298
created	52 observations for photo	55299
created	96 observations for photo	55300
created	101 observations for photo	55301
created	126 observations for photo	55302
created	94 observations for photo	55303
created	136 observations for photo	55304
created	142 observations for photo	55305
created	156 observations for photo	55306
created	143 observations for photo	55307
created	138 observations for photo	55308
created	98 observations for photo	55309
created	112 observations for photo	55310
created	130 observations for photo	55311
created	151 observations for photo	55312
created	136 observations for photo	55313
created	112 observations for photo	55314
created	98 observations for photo	55315

created	95 observations for photo	55316
created	132 observations for photo	55317
created	159 observations for photo	55318
created	158 observations for photo	55319
created	166 observations for photo	55320
created	196 observations for photo	55321
created	199 observations for photo	55322
created	192 observations for photo	55323
created	189 observations for photo	55324
created	191 observations for photo	55325
created	191 observations for photo	55326
created	200 observations for photo	55327
created	193 observations for photo	55328
created	213 observations for photo	55329
created	212 observations for photo	55330
created	238 observations for photo	55331
created	212 observations for photo	55332
created	215 observations for photo	55333
created	217 observations for photo	55334
created	217 observations for photo	55335
created	197 observations for photo	55336
created	229 observations for photo	55337
created	208 observations for photo	55338
created	213 observations for photo	55339
created	218 observations for photo	55340
created	233 observations for photo	55341
created	226 observations for photo	55342
created	193 observations for photo	55343
created	192 observations for photo	55344
created	199 observations for photo	55345
created	195 observations for photo	55346
created	195 observations for photo	55347
created	219 observations for photo	55348

created	227 observations for photo	55349
created	217 observations for photo	55350
created	192 observations for photo	55351
created	188 observations for photo	55352
created	174 observations for photo	55353
created	144 observations for photo	55354
created	138 observations for photo	55355
created	114 observations for photo	55356
created	176 observations for photo	55357
created	229 observations for photo	55358
created	247 observations for photo	55359
created	281 observations for photo	55360
created	302 observations for photo	55361
created	323 observations for photo	55362
created	345 observations for photo	55363
created	301 observations for photo	55364
created	260 observations for photo	55365
created	256 observations for photo	55366
created	249 observations for photo	55367
created	274 observations for photo	55368
created	259 observations for photo	55369
created	275 observations for photo	55370
created	261 observations for photo	55371
created	235 observations for photo	55372
created	188 observations for photo	55373
created	186 observations for photo	55374
created	227 observations for photo	55375
created	227 observations for photo	55376
created	250 observations for photo	55377
created	177 observations for photo	55378
created	180 observations for photo	55379
created	159 observations for photo	55380
created	174 observations for photo	55381

created	169 observations for photo	55382
created	215 observations for photo	55383
created	233 observations for photo	55384
created	226 observations for photo	55385
created	209 observations for photo	55386
created	243 observations for photo	55387
created	204 observations for photo	55388
created	183 observations for photo	55389
created	185 observations for photo	55390
created	219 observations for photo	55391
created	252 observations for photo	55392
created	276 observations for photo	55393
created	282 observations for photo	55394
created	274 observations for photo	55395
created	264 observations for photo	55396
created	228 observations for photo	55397
created	223 observations for photo	55398
created	236 observations for photo	55399
created	241 observations for photo	55400
created	241 observations for photo	55401
created	210 observations for photo	55402
created	222 observations for photo	55403
created	219 observations for photo	55404
created	257 observations for photo	55405
created	226 observations for photo	55406
created	221 observations for photo	55407
created	231 observations for photo	55408
created	217 observations for photo	55409
created	211 observations for photo	55410
created	210 observations for photo	55411
created	167 observations for photo	55412
created	124 observations for photo	55413
created	2 observations for photo	55414

created	111 observations for photo	55101
created	145 observations for photo	55102
created	126 observations for photo	55103
created	125 observations for photo	55104
created	142 observations for photo	55105
created	169 observations for photo	55106
created	157 observations for photo	55107
created	126 observations for photo	55108
created	144 observations for photo	55109
created	153 observations for photo	55110
created	189 observations for photo	55111
created	168 observations for photo	55112
created	202 observations for photo	55113
created	199 observations for photo	55114
created	250 observations for photo	55115
created	227 observations for photo	55116
created	214 observations for photo	55117
created	182 observations for photo	55118
created	208 observations for photo	55119
created	266 observations for photo	55120
created	236 observations for photo	55121
created	247 observations for photo	55122
created	251 observations for photo	55123
created	280 observations for photo	55124
created	243 observations for photo	55125
created	259 observations for photo	55126
created	241 observations for photo	55127
created	277 observations for photo	55128
created	262 observations for photo	55129
created	231 observations for photo	55130
created	158 observations for photo	55131
created	146 observations for photo	55188
created	242 observations for photo	55189

created	248 observations for photo	55190
created	269 observations for photo	55191
created	260 observations for photo	55192
created	219 observations for photo	55193
created	206 observations for photo	55194
created	258 observations for photo	55195
created	331 observations for photo	55196
created	333 observations for photo	55197
created	322 observations for photo	55198
created	266 observations for photo	55199
created	255 observations for photo	55200
created	278 observations for photo	55201
created	294 observations for photo	55202
created	332 observations for photo	55203
created	297 observations for photo	55204
created	344 observations for photo	55205
created	301 observations for photo	55206
created	322 observations for photo	55207
created	256 observations for photo	55208
created	172 observations for photo	55209
created	60 observations for photo	55415
created	106 observations for photo	55416
created	143 observations for photo	55417
created	148 observations for photo	55418
created	146 observations for photo	55419
created	171 observations for photo	55420
created	178 observations for photo	55421
created	198 observations for photo	55422
created	208 observations for photo	55423
created	196 observations for photo	55424
created	195 observations for photo	55425
created	199 observations for photo	55426
created	175 observations for photo	55427

created	176 observations for photo	55428
created	156 observations for photo	55429
created	194 observations for photo	55430
created	157 observations for photo	55431
created	147 observations for photo	55432
created	120 observations for photo	55433
created	140 observations for photo	55434
created	134 observations for photo	55435
created	183 observations for photo	55436
created	199 observations for photo	55437
created	152 observations for photo	55438
created	142 observations for photo	55439
created	117 observations for photo	55440
created	139 observations for photo	55441
created	150 observations for photo	55442
created	155 observations for photo	55443
created	140 observations for photo	55444
created	158 observations for photo	55445
created	161 observations for photo	55446
created	171 observations for photo	55447
created	156 observations for photo	55448
created	135 observations for photo	55449
created	129 observations for photo	55450
created	130 observations for photo	55451
created	121 observations for photo	55452
created	149 observations for photo	55453
created	160 observations for photo	55454
created	206 observations for photo	55455
created	223 observations for photo	55456
created	206 observations for photo	55457
created	197 observations for photo	55458
created	182 observations for photo	55459
created	222 observations for photo	55460

created	207 observations for photo	55461
created	232 observations for photo	55462
created	196 observations for photo	55463
created	257 observations for photo	55464
created	235 observations for photo	55465
created	221 observations for photo	55466
created	215 observations for photo	55467
created	225 observations for photo	55468
created	213 observations for photo	55469
created	188 observations for photo	55470
created	183 observations for photo	55471
created	180 observations for photo	55472
created	192 observations for photo	55473
created	179 observations for photo	55474
created	173 observations for photo	55475
created	164 observations for photo	55476
created	132 observations for photo	55477
created	88 observations for photo	55478
created	64 observations for photo	55210
created	128 observations for photo	55211
created	163 observations for photo	55212
created	190 observations for photo	55213
created	168 observations for photo	55214
created	164 observations for photo	55215
created	169 observations for photo	55216
created	195 observations for photo	55217
created	213 observations for photo	55218
created	209 observations for photo	55219
created	207 observations for photo	55220
created	193 observations for photo	55221
created	236 observations for photo	55222
created	235 observations for photo	55223
created	239 observations for photo	55224

created	222 observations for photo	55225
created	212 observations for photo	55226
created	204 observations for photo	55227
created	211 observations for photo	55228
created	201 observations for photo	55229
created	170 observations for photo	55230
created	192 observations for photo	55231
created	167 observations for photo	55232
created	112 observations for photo	55233
created	92 observations for photo	55479
created	147 observations for photo	55480
created	228 observations for photo	55481
created	246 observations for photo	55482
created	251 observations for photo	55483
created	276 observations for photo	55484
created	254 observations for photo	55485
created	253 observations for photo	55486
created	281 observations for photo	55487
created	267 observations for photo	55488
created	269 observations for photo	55489
created	232 observations for photo	55490
created	234 observations for photo	55491
created	204 observations for photo	55492
created	250 observations for photo	55493
created	208 observations for photo	55494
created	240 observations for photo	55495
created	190 observations for photo	55496
created	199 observations for photo	55497
created	200 observations for photo	55498
created	221 observations for photo	55499
created	217 observations for photo	55500
created	249 observations for photo	55501
created	222 observations for photo	55502

created	241 observations for photo	55503
created	197 observations for photo	55504
created	220 observations for photo	55505
created	198 observations for photo	55506
created	193 observations for photo	55507
created	177 observations for photo	55508
created	207 observations for photo	55509
created	187 observations for photo	55510
created	182 observations for photo	55511
created	171 observations for photo	55512
created	190 observations for photo	55513
created	220 observations for photo	55514
created	204 observations for photo	55515
created	204 observations for photo	55516
created	247 observations for photo	55517
created	243 observations for photo	55518
created	261 observations for photo	55519
created	219 observations for photo	55520
created	217 observations for photo	55521
created	187 observations for photo	55522
created	162 observations for photo	55523
created	192 observations for photo	55524
created	200 observations for photo	55525
created	214 observations for photo	55526
created	215 observations for photo	55527
created	198 observations for photo	55528
created	205 observations for photo	55529
created	198 observations for photo	55530
created	236 observations for photo	55531
created	246 observations for photo	55532
created	267 observations for photo	55533
created	270 observations for photo	55534
created	215 observations for photo	55535

created	218 observations for photo	55536
created	203 observations for photo	55537
created	212 observations for photo	55538
created	201 observations for photo	55539
created	184 observations for photo	55540
created	138 observations for photo	55541
created	86 observations for photo	55542
created	74 observations for photo	55234
created	169 observations for photo	55235
created	223 observations for photo	55236
created	248 observations for photo	55237
created	238 observations for photo	55238
created	233 observations for photo	55239
created	286 observations for photo	55240
created	254 observations for photo	55241
created	280 observations for photo	55242
created	304 observations for photo	55243
created	302 observations for photo	55244
created	275 observations for photo	55245
created	275 observations for photo	55246
created	244 observations for photo	55247
created	254 observations for photo	55248
created	248 observations for photo	55249
created	238 observations for photo	55250
created	232 observations for photo	55251
created	217 observations for photo	55252
created	241 observations for photo	55253
created	247 observations for photo	55254
created	208 observations for photo	55255

total of 69565 measurements in 344 photos are used for adjustment (total 344 photos)

sigma naught 0.8 micron (16:23:56)

sigma naught 0.8 micron (16:24:00)

found 1808 points connecting 2 photos

found 5732 points connecting 3 photos

found 3527 points connecting 4 photos

found 1339 points connecting 5 photos

found 2408 points connecting 6 photos

found 1515 points connecting 7 photos

found 361 points connecting 8 photos

found 1 points connecting 9 photos

number of observations 140297

number of unknowns 52229

redundancy 88068

additional selfcalibration parameters - camera 1

parameter	value	standardized	lower bound of
number		residual	determinability
1	-0.4	-12.9	0.1
2	-1.7	-56.3	0.1
3	-0.1	-6.8	0.1

4	0.1	7.8	0.1
5	-0.2	-11.9	0.1
6	0.1	2.9	0.1
7	0.5	23.4	0.1
8	-1.2	-70.3	0.1
9	0.8	40.2	0.1
10	0.0	1.0	0.0
11	0.0	1.6	0.1
12	-0.2	-5.9	0.1
13	-1.2	-58.7	0.1
14	0.4	40.5	0.0
15	0.0	3.0	0.1
16	-0.3	-17.8	0.1
17	0.1	2.5	0.1
18	-0.1	-6.2	0.1
19	-0.0	-1.3	0.0
20	0.1	4.8	0.1
21	0.1	2.5	0.1
22	-0.2	-7.3	0.1
23	0.0	0.4	0.1
24	0.0	1.5	0.1
25	0.0	0.9	0.1
26	0.6	35.0	0.1
27	0.0	1.9	0.0
28	0.3	18.3	0.1
29	0.4	20.8	0.1
30	0.0	0.8	0.1
31	0.1	10.3	0.1
32	-0.0	-0.4	0.1
33	-0.1	-6.3	0.1
34	0.1	4.8	0.0
35	-0.0	-1.5	0.1
36	0.1	3.1	0.1

37	-0.1	-5.8	0.0
38	0.0	1.4	0.1
39	0.0	0.3	0.0
40	0.2	11.2	0.1
41	0.2	18.9	0.0
42	-0.0	-0.6	0.1
43	-0.1	-4.5	0.1
44	0.0	1.7	0.1

corrections on 25 grid points in micron

-3.18	0.28	0.14	-1.10	-1.38
2.45	1.74	1.55	-0.74	-2.18
-0.49	-0.02	0.16	-0.70	-2.18
-0.26	0.23	0.11	-0.51	-1.17
0.67	0.32	0.07	-0.57	-1.14
-0.19	-0.08	0.02	-0.01	-0.03
1.83	0.94	0.05	-0.56	0.44
0.90	0.40	0.17	-0.02	-0.31
1.06	1.77	-0.00	-0.36	3.93
1.73	1.20	-0.42	-1.32	-3.23

RMS automatic points in photo (number: 69288)

x 0.6 micron
y 0.7 micron

RMS control and manual points in photo (number: 277)

x 1.2 micron
y 1.2 micron

RMS control points with default standard deviation set (number: 45)

x 0.010 [meter]
y 0.016 [meter]

RMS control points with default standard deviation set (number: 45)

z 0.043 [meter]

RMS GNSS observations (number: 344)

x 0.041 [meter]
y 0.044 [meter]
z 0.037 [meter]

sigma naught 0.8 micron (16:24:07)

standard deviations of exterior orientation parameters (px, py, pz in [meter] omega,phi,kappa in [deg/1000])

photo ID	px	py	pz	omega	phi	kappa
55101	0.091	0.048	0.046	1.36541	2.45362	1.28324
55102	0.088	0.046	0.042	1.26225	2.33950	0.98258
55103	0.084	0.044	0.039	1.16664	2.22000	0.75652
55104	0.080	0.040	0.036	1.04078	2.09769	0.63728
55105	0.075	0.039	0.034	1.01663	1.96879	0.53446
55106	0.073	0.038	0.033	0.96249	1.87742	0.51240
55107	0.071	0.040	0.032	1.00783	1.82628	0.50820
55108	0.069	0.040	0.031	1.02249	1.75443	0.49867
55109	0.065	0.038	0.030	0.94985	1.65514	0.49797
55110	0.061	0.038	0.028	0.93653	1.54671	0.38953

55111	0.059	0.036	0.027	0.91369	1.48469	0.31984
55112	0.058	0.036	0.026	0.91576	1.45410	0.29917
55113	0.053	0.034	0.024	0.84999	1.33025	0.26086
55114	0.051	0.034	0.024	0.83899	1.29192	0.24316
55115	0.048	0.031	0.023	0.78242	1.20004	0.21431
55116	0.048	0.034	0.023	0.84173	1.19353	0.22571
55117	0.047	0.035	0.023	0.86923	1.18872	0.23127
55118	0.047	0.033	0.023	0.81906	1.18483	0.24042
55119	0.048	0.033	0.024	0.82601	1.19990	0.25256
55120	0.048	0.034	0.024	0.85187	1.19732	0.23473
55121	0.049	0.033	0.025	0.82950	1.23132	0.23473
55122	0.049	0.033	0.025	0.83915	1.22485	0.22047
55123	0.052	0.036	0.026	0.90420	1.30851	0.23542
55124	0.052	0.033	0.027	0.82994	1.32001	0.22857
55125	0.054	0.034	0.029	0.84662	1.35960	0.24547
55126	0.057	0.034	0.030	0.84610	1.42205	0.24829
55127	0.060	0.037	0.031	0.91875	1.50253	0.27117
55128	0.062	0.036	0.033	0.88574	1.54177	0.28239
55129	0.064	0.036	0.035	0.90528	1.59745	0.32578
55130	0.069	0.039	0.037	0.99176	1.69184	0.43059
55131	0.073	0.044	0.041	1.12890	1.77915	0.59284
55188	0.070	0.044	0.041	1.12700	1.72831	0.59182
55189	0.063	0.041	0.037	1.00962	1.56451	0.42246
55190	0.061	0.040	0.034	0.99991	1.52540	0.34517
55191	0.057	0.035	0.032	0.86331	1.42916	0.27629
55192	0.054	0.033	0.029	0.82713	1.35713	0.24463
55193	0.053	0.036	0.027	0.90226	1.32249	0.24749
55194	0.052	0.037	0.026	0.94487	1.29711	0.23803
55195	0.047	0.033	0.024	0.82482	1.16844	0.21310
55196	0.045	0.033	0.023	0.81933	1.13402	0.19882
55197	0.044	0.033	0.023	0.84616	1.09939	0.19711
55198	0.043	0.032	0.023	0.81021	1.08206	0.19118
55199	0.044	0.033	0.024	0.82007	1.09395	0.19710
55200	0.045	0.036	0.025	0.91251	1.11511	0.20906
55201	0.044	0.033	0.026	0.83265	1.08934	0.19890
55202	0.045	0.032	0.027	0.79932	1.13289	0.19947
55203	0.048	0.034	0.029	0.85152	1.19212	0.20775
55204	0.050	0.034	0.031	0.86393	1.24653	0.23175
55205	0.053	0.034	0.034	0.84397	1.29854	0.25012

55206	0.056	0.036	0.037	0.89709	1.36271	0.29327
55207	0.059	0.039	0.041	0.98373	1.42506	0.36949
55208	0.063	0.042	0.044	1.04358	1.50909	0.49123
55209	0.070	0.049	0.050	1.23011	1.65107	0.68880
55210	0.134	0.063	0.087	1.65307	3.34938	1.71026
55211	0.127	0.059	0.079	1.48512	3.17648	1.28688
55212	0.120	0.056	0.072	1.37344	3.02761	1.04019
55213	0.114	0.053	0.066	1.29761	2.91222	0.82720
55214	0.108	0.050	0.061	1.20764	2.76440	0.69535
55215	0.104	0.050	0.056	1.23518	2.66360	0.64545
55216	0.099	0.047	0.052	1.15094	2.53814	0.53591
55217	0.095	0.045	0.048	1.10186	2.42401	0.48900
55218	0.091	0.045	0.044	1.08458	2.32437	0.47197
55219	0.088	0.045	0.042	1.09504	2.25320	0.43318
55220	0.086	0.044	0.040	1.05832	2.18914	0.42914
55221	0.084	0.044	0.039	1.08026	2.13911	0.41105
55222	0.082	0.043	0.038	1.05124	2.07953	0.41973
55223	0.080	0.043	0.039	1.08774	2.05909	0.38788
55224	0.080	0.044	0.040	1.10823	2.05402	0.40303
55225	0.080	0.043	0.042	1.07821	2.03832	0.42038
55226	0.082	0.045	0.045	1.13568	2.06572	0.44017
55227	0.084	0.044	0.049	1.12598	2.09973	0.48847
55228	0.087	0.047	0.054	1.17295	2.18543	0.51234
55229	0.090	0.047	0.059	1.17714	2.24048	0.59191
55230	0.096	0.050	0.064	1.26035	2.41565	0.64001
55231	0.098	0.049	0.069	1.25853	2.44856	0.71375
55232	0.103	0.053	0.075	1.36939	2.57275	0.81376
55233	0.109	0.059	0.081	1.56277	2.70136	1.00657
55234	0.085	0.056	0.066	1.49452	2.12569	1.11652
55235	0.076	0.049	0.058	1.23289	1.87838	0.72226
55236	0.071	0.045	0.052	1.13766	1.77602	0.54179
55237	0.068	0.043	0.047	1.06024	1.70645	0.42752
55238	0.066	0.040	0.042	1.00102	1.65753	0.35938
55239	0.060	0.040	0.039	0.99956	1.51438	0.32772
55240	0.056	0.037	0.035	0.93313	1.40648	0.28194
55241	0.056	0.040	0.032	1.00117	1.39986	0.27580
55242	0.052	0.036	0.029	0.91184	1.31247	0.24901
55243	0.050	0.036	0.027	0.89745	1.27078	0.23298
55244	0.049	0.037	0.025	0.92976	1.22764	0.22821

55245	0.049	0.037	0.024	0.92180	1.22152	0.22340
55246	0.048	0.036	0.024	0.89368	1.21411	0.22471
55247	0.050	0.038	0.026	0.96915	1.25392	0.24410
55248	0.051	0.038	0.027	0.94690	1.28448	0.23757
55249	0.052	0.036	0.029	0.89068	1.30922	0.24285
55250	0.055	0.039	0.031	0.97454	1.36287	0.26269
55251	0.057	0.039	0.035	0.96534	1.41601	0.28372
55252	0.060	0.041	0.038	1.03575	1.47270	0.32867
55253	0.064	0.041	0.042	1.01451	1.54826	0.38084
55254	0.068	0.044	0.048	1.10565	1.62597	0.49527
55255	0.073	0.049	0.054	1.22670	1.71411	0.67663
55298	0.090	0.047	0.053	2.02951	2.94932	2.68952
55299	0.088	0.044	0.049	1.57312	2.67999	2.31005
55300	0.085	0.043	0.045	1.33355	2.44868	1.87495
55301	0.084	0.043	0.043	1.30783	2.31471	1.48835
55302	0.081	0.040	0.041	1.13359	2.19739	1.18627
55303	0.080	0.041	0.040	1.16353	2.11629	0.94873
55304	0.076	0.040	0.038	1.05940	1.97901	0.68346
55305	0.074	0.039	0.036	1.04310	1.92042	0.58381
55306	0.071	0.039	0.035	1.01214	1.82450	0.53369
55307	0.070	0.038	0.034	0.99472	1.80849	0.55131
55308	0.069	0.037	0.034	0.99693	1.79596	0.56196
55309	0.068	0.039	0.033	1.08086	1.80136	0.72404
55310	0.067	0.038	0.033	1.03711	1.77184	0.55369
55311	0.064	0.037	0.031	0.99045	1.70066	0.64785
55312	0.063	0.038	0.031	1.02158	1.66803	0.61748
55313	0.062	0.038	0.030	1.03630	1.66855	0.68699
55314	0.061	0.039	0.031	1.05924	1.66873	0.71009
55315	0.061	0.037	0.030	1.05296	1.67296	0.72212
55316	0.060	0.039	0.030	1.13509	1.68361	0.64211
55317	0.059	0.038	0.028	1.05422	1.61007	0.60342
55318	0.057	0.036	0.028	1.00057	1.53916	0.54047
55319	0.055	0.036	0.026	0.98158	1.46144	0.53535
55320	0.052	0.036	0.025	0.93768	1.34397	0.43304
55321	0.049	0.033	0.024	0.87011	1.27730	0.36164
55322	0.048	0.035	0.023	0.89515	1.23345	0.32133
55323	0.048	0.035	0.022	0.89430	1.21340	0.29971
55324	0.048	0.033	0.022	0.84964	1.20193	0.29224
55325	0.047	0.035	0.021	0.87300	1.17471	0.28856

55326	0.047	0.034	0.021	0.86478	1.17201	0.28480
55327	0.046	0.033	0.021	0.84108	1.16144	0.27394
55328	0.047	0.034	0.021	0.86338	1.17488	0.28005
55329	0.046	0.033	0.021	0.83318	1.15965	0.26106
55330	0.045	0.032	0.020	0.82175	1.12526	0.24856
55331	0.044	0.033	0.020	0.81850	1.09993	0.22593
55332	0.044	0.033	0.020	0.82942	1.10971	0.23360
55333	0.045	0.034	0.021	0.86106	1.13504	0.24068
55334	0.047	0.034	0.021	0.84712	1.17505	0.24533
55335	0.046	0.033	0.021	0.81189	1.14476	0.23653
55336	0.047	0.034	0.022	0.86437	1.16644	0.25514
55337	0.046	0.034	0.022	0.84221	1.14623	0.23515
55338	0.047	0.034	0.023	0.84394	1.18244	0.24982
55339	0.048	0.035	0.023	0.86960	1.19122	0.24942
55340	0.048	0.033	0.024	0.82515	1.19736	0.23863
55341	0.049	0.033	0.024	0.82354	1.21948	0.22715
55342	0.050	0.034	0.025	0.84106	1.24538	0.22616
55343	0.051	0.034	0.025	0.83434	1.27369	0.24413
55344	0.052	0.035	0.026	0.86129	1.30575	0.25006
55345	0.055	0.034	0.028	0.84127	1.37305	0.25410
55346	0.057	0.035	0.029	0.85955	1.42957	0.26870
55347	0.058	0.035	0.030	0.87088	1.46561	0.26949
55348	0.059	0.034	0.030	0.84292	1.47068	0.27051
55349	0.060	0.036	0.031	0.88099	1.50367	0.30303
55350	0.061	0.036	0.032	0.87001	1.52852	0.34804
55351	0.064	0.037	0.034	0.88615	1.59523	0.41999
55352	0.067	0.038	0.036	0.93760	1.68397	0.53756
55353	0.067	0.037	0.037	0.88929	1.70089	0.60342
55354	0.071	0.041	0.039	1.04238	1.81434	0.71775
55355	0.073	0.041	0.041	1.06001	1.86723	0.88343
55356	0.075	0.044	0.044	1.16985	1.93076	0.96013
55357	0.061	0.040	0.034	1.02127	1.44685	0.65816
55358	0.057	0.035	0.031	0.85858	1.37039	0.50078
55359	0.056	0.033	0.030	0.80786	1.34610	0.40803
55360	0.055	0.033	0.029	0.79073	1.31576	0.34629
55361	0.052	0.032	0.028	0.76993	1.24861	0.30275
55362	0.051	0.030	0.027	0.73439	1.22386	0.26803
55363	0.050	0.029	0.026	0.71267	1.20577	0.24387
55364	0.049	0.030	0.025	0.74711	1.18632	0.23076

55365	0.049	0.031	0.024	0.75540	1.18640	0.23025
55366	0.047	0.030	0.024	0.74238	1.14258	0.22224
55367	0.048	0.033	0.023	0.82816	1.17007	0.24040
55368	0.046	0.031	0.023	0.76771	1.12492	0.22411
55369	0.046	0.033	0.023	0.81049	1.13080	0.23717
55370	0.045	0.032	0.022	0.79645	1.11932	0.23746
55371	0.046	0.031	0.022	0.78680	1.14365	0.24246
55372	0.045	0.031	0.022	0.80608	1.12206	0.25143
55373	0.044	0.034	0.022	0.86945	1.10704	0.26412
55374	0.043	0.034	0.022	0.87709	1.08958	0.27407
55375	0.042	0.032	0.021	0.83041	1.06497	0.27192
55376	0.042	0.032	0.021	0.84942	1.06757	0.28125
55377	0.041	0.033	0.021	0.86533	1.04525	0.29389
55378	0.041	0.033	0.022	0.88244	1.05644	0.33202
55379	0.043	0.033	0.023	0.89941	1.15155	0.40004
55380	0.044	0.031	0.023	0.87161	1.16972	0.35379
55381	0.042	0.034	0.021	0.95924	1.09936	0.34338
55382	0.040	0.032	0.020	0.87632	1.06067	0.31231
55383	0.039	0.032	0.019	0.85335	1.03523	0.27812
55384	0.039	0.032	0.019	0.83917	1.03239	0.27053
55385	0.039	0.032	0.019	0.86931	1.01772	0.27649
55386	0.038	0.030	0.019	0.80948	1.00495	0.27768
55387	0.037	0.027	0.019	0.73253	0.98025	0.26525
55388	0.040	0.031	0.020	0.85373	1.07037	0.30886
55389	0.042	0.034	0.022	0.94730	1.11815	0.35160
55390	0.043	0.032	0.023	0.83715	1.13149	0.32582
55391	0.042	0.031	0.021	0.82095	1.09328	0.30546
55392	0.041	0.031	0.020	0.80888	1.02949	0.27596
55393	0.041	0.031	0.020	0.81404	1.03997	0.26853
55394	0.041	0.031	0.020	0.80005	1.04242	0.26510
55395	0.042	0.031	0.021	0.77645	1.06532	0.26454
55396	0.043	0.030	0.022	0.78069	1.10705	0.26405
55397	0.045	0.032	0.023	0.84565	1.13856	0.28016
55398	0.046	0.032	0.023	0.84311	1.16681	0.27811
55399	0.046	0.033	0.023	0.84336	1.16363	0.27019
55400	0.047	0.034	0.023	0.85727	1.17990	0.27622
55401	0.048	0.034	0.024	0.88135	1.21266	0.28105
55402	0.048	0.031	0.025	0.79347	1.21676	0.28154
55403	0.049	0.030	0.025	0.78579	1.25693	0.28248

55404	0.050	0.032	0.026	0.82878	1.26435	0.27894
55405	0.050	0.032	0.026	0.81331	1.25129	0.26119
55406	0.051	0.034	0.026	0.87002	1.27732	0.27260
55407	0.051	0.031	0.027	0.78527	1.26794	0.27543
55408	0.051	0.030	0.027	0.77622	1.28470	0.28985
55409	0.053	0.035	0.029	0.90921	1.34321	0.33924
55410	0.053	0.033	0.029	0.86144	1.34559	0.37748
55411	0.055	0.033	0.031	0.86597	1.40604	0.46889
55412	0.056	0.036	0.033	0.99017	1.44431	0.60552
55413	0.059	0.040	0.036	1.16001	1.50134	0.79703
55414	0.067	0.046	0.052	4.23733	2.01527	8.25102
55415	0.095	0.046	0.060	1.54226	2.63270	1.89077
55416	0.093	0.043	0.055	1.33939	2.47571	1.50519
55417	0.090	0.041	0.051	1.16827	2.35838	1.21965
55418	0.088	0.040	0.049	1.09273	2.31284	1.03051
55419	0.086	0.040	0.046	1.05231	2.24508	0.83305
55420	0.084	0.036	0.045	0.93666	2.18880	0.66534
55421	0.083	0.037	0.044	0.95681	2.15462	0.58380
55422	0.081	0.037	0.043	0.95082	2.09387	0.51483
55423	0.078	0.034	0.042	0.84063	2.02565	0.51623
55424	0.078	0.034	0.042	0.85234	2.01243	0.49567
55425	0.076	0.035	0.041	0.90081	1.96342	0.51882
55426	0.073	0.035	0.040	0.89160	1.88878	0.49798
55427	0.072	0.033	0.039	0.89607	1.86855	0.49645
55428	0.071	0.033	0.038	0.84489	1.83312	0.55415
55429	0.069	0.036	0.038	0.95367	1.79940	0.52225
55430	0.068	0.036	0.037	0.94782	1.75116	0.59055
55431	0.067	0.038	0.037	1.00100	1.75359	0.51057
55432	0.066	0.038	0.035	1.00723	1.74935	0.63407
55433	0.066	0.036	0.035	0.99418	1.73752	0.51845
55434	0.063	0.037	0.034	0.98776	1.67500	0.61323
55435	0.064	0.038	0.034	1.06077	1.68149	0.56596
55436	0.062	0.035	0.032	0.90618	1.62926	0.53296
55437	0.061	0.036	0.032	0.96221	1.59309	0.53975
55438	0.063	0.037	0.032	0.99623	1.63172	0.56677
55439	0.061	0.036	0.031	0.93823	1.61384	0.53723
55440	0.062	0.035	0.032	0.99356	1.67380	0.54784
55441	0.059	0.034	0.031	0.94914	1.62535	0.53934
55442	0.061	0.034	0.030	0.98555	1.66832	0.54873

55443	0.059	0.034	0.029	0.96613	1.61425	0.53745
55444	0.059	0.035	0.029	1.00599	1.62262	0.50468
55445	0.057	0.034	0.029	0.93007	1.54770	0.54746
55446	0.056	0.033	0.029	0.93844	1.53108	0.49392
55447	0.056	0.032	0.029	0.91762	1.54481	0.49510
55448	0.057	0.034	0.029	0.94672	1.55085	0.50926
55449	0.059	0.036	0.030	1.03241	1.61324	0.54037
55450	0.060	0.036	0.030	1.01760	1.65749	0.57739
55451	0.062	0.036	0.031	0.99289	1.70931	0.57129
55452	0.064	0.037	0.032	1.04996	1.74246	0.57677
55453	0.062	0.036	0.031	0.95047	1.67868	0.54179
55454	0.061	0.035	0.031	0.96460	1.62733	0.55618
55455	0.062	0.035	0.031	0.94962	1.61708	0.51080
55456	0.062	0.033	0.031	0.88116	1.62212	0.47835
55457	0.062	0.033	0.031	0.84565	1.60501	0.45065
55458	0.063	0.034	0.031	0.86022	1.63221	0.45774
55459	0.064	0.034	0.032	0.88798	1.64720	0.46426
55460	0.065	0.033	0.032	0.82570	1.65211	0.42731
55461	0.066	0.033	0.032	0.83515	1.67515	0.43340
55462	0.067	0.034	0.033	0.82800	1.68635	0.42605
55463	0.068	0.036	0.033	0.88932	1.72378	0.41488
55464	0.069	0.033	0.034	0.82052	1.72976	0.40539
55465	0.071	0.032	0.035	0.80104	1.77394	0.37451
55466	0.073	0.036	0.036	0.87782	1.83532	0.39197
55467	0.074	0.034	0.036	0.81481	1.84041	0.41569
55468	0.074	0.033	0.037	0.80457	1.84887	0.39509
55469	0.076	0.035	0.038	0.84782	1.88749	0.41702
55470	0.079	0.035	0.040	0.86140	1.95877	0.45370
55471	0.081	0.036	0.041	0.85009	2.00716	0.50195
55472	0.083	0.037	0.042	0.89557	2.04578	0.57200
55473	0.085	0.038	0.044	0.90191	2.08210	0.60497
55474	0.085	0.037	0.045	0.91355	2.09505	0.67138
55475	0.088	0.038	0.047	0.93124	2.15280	0.76863
55476	0.088	0.039	0.049	0.98009	2.17075	0.92243
55477	0.091	0.041	0.051	1.13269	2.25801	1.14508
55478	0.094	0.044	0.054	1.29206	2.33055	1.42969
55479	0.065	0.043	0.041	1.23433	1.69817	1.15555
55480	0.062	0.041	0.037	1.11011	1.59615	0.89963
55481	0.060	0.037	0.033	0.96905	1.49414	0.68847

55482	0.058	0.035	0.031	0.87192	1.43039	0.56410
55483	0.057	0.035	0.030	0.86448	1.39900	0.47118
55484	0.054	0.032	0.029	0.75257	1.33675	0.38851
55485	0.053	0.033	0.028	0.80640	1.29432	0.34166
55486	0.051	0.033	0.027	0.79548	1.25588	0.29208
55487	0.049	0.031	0.025	0.73804	1.20475	0.25211
55488	0.048	0.030	0.025	0.73520	1.17895	0.23513
55489	0.048	0.031	0.024	0.75283	1.18110	0.22267
55490	0.048	0.031	0.024	0.76279	1.18306	0.22597
55491	0.047	0.032	0.023	0.77454	1.16819	0.21733
55492	0.047	0.033	0.023	0.82317	1.17270	0.23500
55493	0.046	0.033	0.022	0.83323	1.15246	0.22602
55494	0.045	0.033	0.022	0.82255	1.12733	0.23546
55495	0.043	0.032	0.021	0.79015	1.08002	0.21584
55496	0.044	0.034	0.021	0.85156	1.08708	0.23604
55497	0.043	0.034	0.021	0.84741	1.06869	0.23097
55498	0.042	0.032	0.020	0.81014	1.06156	0.23333
55499	0.040	0.032	0.020	0.80374	1.01165	0.21670
55500	0.041	0.032	0.020	0.81851	1.03536	0.23288
55501	0.041	0.032	0.019	0.81137	1.02457	0.22523
55502	0.040	0.034	0.019	0.85184	1.01788	0.23877
55503	0.039	0.030	0.018	0.74951	0.98801	0.22258
55504	0.040	0.032	0.019	0.82820	1.02565	0.25209
55505	0.039	0.033	0.018	0.84190	1.00135	0.23967
55506	0.040	0.033	0.019	0.86787	1.02791	0.26045
55507	0.039	0.031	0.019	0.81966	1.01409	0.25070
55508	0.039	0.030	0.019	0.78685	1.00485	0.25298
55509	0.037	0.031	0.018	0.81390	0.95612	0.23697
55510	0.039	0.034	0.018	0.88726	0.98471	0.25564
55511	0.039	0.035	0.019	0.89648	0.98993	0.25891
55512	0.039	0.031	0.019	0.79716	1.00345	0.26019
55513	0.040	0.031	0.019	0.79230	1.00940	0.26063
55514	0.040	0.032	0.019	0.83248	1.00103	0.24521
55515	0.041	0.033	0.019	0.84182	1.03663	0.25967
55516	0.041	0.033	0.019	0.83819	1.04031	0.26395
55517	0.040	0.030	0.019	0.77342	1.00287	0.24434
55518	0.040	0.032	0.020	0.81765	1.00265	0.26339
55519	0.040	0.030	0.020	0.77668	1.02827	0.26997
55520	0.043	0.031	0.021	0.82915	1.10024	0.30179

55521	0.044	0.031	0.022	0.82002	1.14257	0.32354
55522	0.045	0.033	0.023	0.85366	1.17812	0.35102
55523	0.047	0.034	0.024	0.88700	1.23334	0.36298
55524	0.045	0.032	0.024	0.82597	1.16026	0.33799
55525	0.044	0.034	0.024	0.89759	1.14646	0.31809
55526	0.045	0.035	0.024	0.91125	1.14535	0.29923
55527	0.046	0.032	0.024	0.82407	1.17669	0.28441
55528	0.048	0.032	0.024	0.82421	1.22774	0.28341
55529	0.049	0.032	0.025	0.81405	1.24699	0.28240
55530	0.050	0.033	0.025	0.83679	1.27702	0.28898
55531	0.050	0.032	0.025	0.80665	1.27841	0.27525
55532	0.050	0.034	0.026	0.85029	1.28700	0.28869
55533	0.051	0.033	0.026	0.84588	1.29646	0.29052
55534	0.051	0.031	0.027	0.78735	1.32088	0.30341
55535	0.054	0.032	0.028	0.84211	1.39001	0.35023
55536	0.056	0.033	0.029	0.85535	1.46313	0.39572
55537	0.058	0.035	0.030	0.90695	1.55911	0.44946
55538	0.060	0.035	0.031	0.93060	1.62258	0.55983
55539	0.061	0.034	0.033	0.94949	1.62774	0.66217
55540	0.061	0.037	0.034	1.05033	1.63801	0.84462
55541	0.065	0.039	0.037	1.16011	1.77669	1.10070
55542	0.066	0.042	0.041	1.29343	1.87389	1.33588

mean standard deviations of rotations

omega	0.9 [deg/1000]
phi	1.5 [deg/1000]
kappa	0.5 [deg/1000]

max standard deviations of rotations

omega	4.2 [deg/1000] at photo	55414
phi	3.3 [deg/1000] at photo	55210
kappa	8.3 [deg/1000] at photo	55414

mean standard deviations of translations

x	0.060 [meter]
y	0.036 [meter]

z 0.032 [meter]

max standard deviations of translations

x	0.134 [meter] at photo	55210
y	0.063 [meter] at photo	55210
z	0.087 [meter] at photo	55210

residuals horizontal control points in [meter]

control point ID	rx	ry
HV20_Sinos	-0.017	-0.004
HV21_Sinos	0.000	-0.003
HV22_Sinos	-0.009	-0.012
HV23_Sinos	-0.009	-0.008
HV24_Sinos	0.004	0.019
HV25_Sinos	0.007	0.005
HV26_Sinos	0.027	0.012
HV27_Sinos	0.001	-0.007
HV28_Sinos	0.004	-0.013
HV29_Sinos	-0.003	0.013
HV30_Sinos	-0.013	0.005
HV31_Sinos	-0.012	0.006
HV32_Sinos	0.001	-0.000
HV33_Sinos	-0.008	0.019
HV34_Sinos	-0.008	-0.029
HV35_Sinos	0.003	-0.005
HV36_Sinos	-0.005	0.011
HV37_Sinos	-0.002	0.000

HV38_Sinos	0.009	0.004
HV39_Sinos	-0.004	-0.000
HV40_Sinos	0.004	0.033
HV41_Sinos	0.008	0.014
HV42_Sinos	0.020	0.001
HV43_Sinos	-0.010	-0.004
HV44_Sinos	0.015	0.015
HV45_Sinos	-0.008	-0.010
HV46_Sinos	0.006	0.009
HV47_Sinos	-0.024	-0.003
HV48_Sinos	0.012	-0.011
HV49_Sinos	0.001	0.047
HV50_Sinos	0.011	-0.009
HV51_Sinos	-0.002	-0.047
HV52_Sinos	-0.014	0.007
HV53_Sinos	-0.004	-0.011
HV54_Sinos	0.013	-0.013
HV55_Sinos	0.003	-0.040
HV56_Sinos	0.004	0.011
HV57_Sinos	-0.019	-0.004
HV58_Sinos	-0.007	0.002
HV59_Sinos	0.007	0.005
HV60_Sinos	0.004	-0.019
HV61_Sinos	0.008	0.003
HV62_Sinos	-0.006	0.016
HV63_Sinos	0.004	0.003
HV_28A_Sinos	0.007	-0.005

residuals vertical control points in [meter]

control point ID	rz
HV20_Sinos	-0.071
HV21_Sinos	-0.068
HV22_Sinos	-0.052
HV23_Sinos	0.006
HV24_Sinos	-0.005
HV25_Sinos	0.005
HV26_Sinos	0.034
HV27_Sinos	-0.028
HV28_Sinos	-0.011
HV29_Sinos	0.012
HV30_Sinos	-0.064
HV31_Sinos	-0.029
HV32_Sinos	0.041
HV33_Sinos	0.037
HV34_Sinos	0.049
HV35_Sinos	0.072
HV36_Sinos	0.048
HV37_Sinos	-0.017
HV38_Sinos	-0.026
HV39_Sinos	-0.008
HV40_Sinos	-0.017
HV41_Sinos	-0.097
HV42_Sinos	0.059
HV43_Sinos	0.053
HV44_Sinos	0.038
HV45_Sinos	-0.018
HV46_Sinos	-0.009
HV47_Sinos	0.006
HV48_Sinos	-0.059
HV49_Sinos	-0.011
HV50_Sinos	0.047

HV51_Sinos	-0.030
HV52_Sinos	-0.059
HV53_Sinos	-0.004
HV54_Sinos	0.017
HV55_Sinos	0.022
HV56_Sinos	-0.074
HV57_Sinos	0.070
HV58_Sinos	-0.026
HV59_Sinos	0.047
HV60_Sinos	0.029
HV61_Sinos	0.032
HV62_Sinos	-0.018
HV63_Sinos	0.063
HV_28A_Sinos	0.012

residuals GNSS observations in [meter]

photo ID	rx	ry	rz
----------	----	----	----

GNSS drift parameter for profile 1

constant part in [meter]	X	-1.220	Y	1.489	Z	5.437
--------------------------	---	--------	---	-------	---	-------

linear part in [meter]	X	0.014	Y	0.023	Z	-0.062
------------------------	---	-------	---	-------	---	--------

55101	0.016	-0.007	0.007
55102	-0.077	0.032	0.015
55103	0.017	0.044	0.088
55104	-0.022	0.003	0.033
55105	0.002	-0.016	0.065
55106	0.041	-0.028	-0.012

55107	-0.032	-0.018	-0.020
55108	0.009	-0.005	-0.069
55109	0.004	0.049	-0.031
55110	-0.019	-0.010	-0.041
55111	0.033	0.009	-0.059
55112	0.088	0.059	-0.110
55113	0.040	-0.035	-0.035
55114	0.025	-0.037	-0.011
55115	0.027	0.024	0.052
55116	0.022	-0.005	0.038
55117	-0.053	0.053	0.054
55118	-0.088	0.056	0.067
55119	-0.081	-0.044	-0.076
55120	-0.004	-0.055	-0.019
55121	0.006	-0.119	-0.020
55122	0.056	-0.076	0.029
55123	-0.036	-0.021	0.024
55124	0.025	-0.037	-0.027
55125	0.024	-0.011	0.036
55126	0.014	0.032	-0.013
55127	-0.060	0.048	0.058
55128	-0.056	0.038	0.024
55129	0.007	-0.023	-0.020
55130	0.052	0.045	0.004
55131	0.021	0.053	-0.031

GNSS drift parameter for profile 2

constant part in [meter] X -1.328 Y 1.465 Z 5.278

linear part in [meter] X 0.005 Y 0.033 Z -0.063

55188	-0.011	-0.051	0.000
55189	0.002	0.050	-0.048
55190	-0.016	0.026	-0.015

55191	-0.029	0.026	-0.000
55192	0.033	0.044	0.032
55193	0.006	0.020	0.001
55194	-0.032	-0.046	-0.026
55195	0.021	-0.001	-0.007
55196	-0.002	-0.043	-0.037
55197	0.030	0.028	-0.003
55198	0.005	-0.046	0.050
55199	0.032	-0.007	0.038
55200	-0.026	-0.046	0.022
55201	-0.001	0.012	0.047
55202	0.037	-0.035	0.050
55203	-0.008	-0.005	0.006
55204	-0.013	0.000	-0.027
55205	-0.016	0.017	-0.007
55206	-0.031	0.040	-0.019
55207	0.035	0.022	-0.004
55208	-0.011	-0.035	-0.020
55209	-0.007	0.032	-0.035

GNSS drift parameter for profile 3

constant part in [meter] X 1.209 Y -1.575 Z 4.933

linear part in [meter] X 0.027 Y -0.022 Z 0.054

55210	-0.006	-0.032	0.048
55211	-0.022	0.022	-0.007
55212	0.039	0.022	-0.010
55213	0.052	-0.021	0.005
55214	-0.006	-0.036	0.013
55215	0.001	-0.016	0.021
55216	-0.014	-0.045	-0.040
55217	-0.013	0.001	0.000
55218	0.001	0.005	-0.074

55219	-0.002	-0.011	-0.033
55220	-0.008	0.076	-0.028
55221	-0.023	0.012	0.025
55222	-0.011	0.029	0.022
55223	-0.009	0.041	-0.008
55224	0.032	-0.020	0.016
55225	-0.033	0.025	0.019
55226	-0.050	-0.037	0.056
55227	-0.001	0.065	0.044
55228	0.018	0.018	0.014
55229	0.033	-0.004	-0.041
55230	0.016	-0.001	-0.053
55231	-0.019	-0.057	-0.002
55232	0.030	0.016	-0.019
55233	-0.005	-0.051	0.033

GNSS drift parameter for profile 4

constant part in [meter] X -1.593 Y 1.495 Z 5.220

linear part in [meter] X 0.022 Y 0.030 Z -0.046

55234	0.041	-0.028	-0.016
55235	-0.023	0.030	0.015
55236	-0.032	-0.021	0.002
55237	-0.024	0.077	0.049
55238	0.009	0.032	0.047
55239	0.004	-0.034	0.036
55240	-0.043	-0.072	-0.012
55241	-0.000	-0.016	-0.028
55242	-0.009	-0.041	-0.053
55243	0.060	0.032	-0.057
55244	0.011	0.034	-0.032
55245	0.017	-0.003	-0.017
55246	0.060	-0.049	0.034

55247	0.038	0.042	0.011
55248	-0.035	0.022	0.050
55249	-0.061	-0.004	0.025
55250	-0.041	0.008	-0.042
55251	0.029	0.006	-0.032
55252	-0.012	0.016	-0.073
55253	0.019	0.011	-0.029
55254	0.007	-0.041	-0.022
55255	-0.016	0.001	0.143

GNSS drift parameter for profile 5

constant part in [meter] X -1.265 Y 1.378 Z 4.701

linear part in [meter] X -0.055 Y 0.002 Z -0.050

55298	0.019	-0.005	0.077
55299	-0.030	0.031	-0.033
55300	-0.004	-0.000	-0.033
55301	0.003	0.012	-0.029
55302	0.043	0.001	-0.038
55303	0.034	0.000	-0.063
55304	0.025	0.023	-0.026
55305	-0.038	-0.001	0.007
55306	-0.048	-0.050	-0.017
55307	-0.000	-0.041	0.022
55308	0.028	-0.039	0.002
55309	0.019	-0.014	-0.023
55310	-0.036	-0.012	0.013
55311	-0.033	-0.014	-0.002
55312	-0.082	0.036	0.040
55313	-0.018	-0.043	0.025
55314	0.043	-0.013	0.039
55315	0.018	-0.006	0.032
55316	0.016	0.017	0.020

55317	0.032	0.022	-0.016
55318	0.043	-0.022	-0.014
55319	-0.018	0.065	0.004
55320	0.031	0.008	-0.007
55321	-0.079	-0.007	0.020
55322	0.007	0.004	-0.008
55323	-0.085	0.038	-0.031
55324	-0.006	-0.024	0.000
55325	-0.004	0.054	0.001
55326	0.037	0.003	-0.019
55327	0.040	-0.026	-0.071
55328	0.108	0.112	-0.048
55329	0.004	0.096	-0.044
55330	-0.020	0.058	0.042
55331	-0.042	-0.008	0.013
55332	0.058	-0.057	0.054
55333	0.020	-0.004	0.009
55334	0.049	-0.014	0.040
55335	0.012	-0.089	0.058
55336	-0.057	-0.074	0.023
55337	-0.013	0.027	0.006
55338	-0.026	-0.019	0.020
55339	-0.045	0.021	0.016
55340	-0.039	0.003	0.019
55341	-0.002	0.038	0.012
55342	0.037	-0.011	0.015
55343	-0.036	-0.071	-0.002
55344	0.035	-0.017	0.053
55345	0.001	-0.071	0.019
55346	0.002	-0.013	0.011
55347	0.013	0.013	0.025
55348	0.020	0.001	0.036
55349	-0.070	0.000	0.035

55350	-0.062	0.041	0.007
55351	0.008	-0.037	-0.052
55352	0.022	-0.014	-0.044
55353	0.057	0.030	-0.103
55354	0.016	0.001	-0.044
55355	0.004	0.024	-0.038
55356	-0.010	0.035	-0.013

GNSS drift parameter for profile 6

constant part in [meter] X 1.230 Y -1.164 Z 4.599

linear part in [meter] X 0.004 Y 0.014 Z 0.020

55357	0.133	0.023	0.127
55358	-0.041	-0.005	-0.030
55359	-0.012	0.040	0.014
55360	0.038	0.072	0.001
55361	-0.045	0.050	-0.021
55362	0.049	0.013	0.042
55363	-0.008	0.025	0.024
55364	0.040	0.029	0.003
55365	-0.007	0.038	-0.004
55366	-0.052	-0.005	0.025
55367	-0.067	0.050	0.013
55368	-0.012	0.056	-0.001
55369	-0.006	-0.017	-0.043
55370	0.061	-0.000	-0.086
55371	0.030	-0.074	-0.022
55372	-0.034	-0.034	-0.080
55373	0.028	-0.009	-0.063
55374	-0.002	-0.046	-0.029
55375	0.037	0.009	-0.049
55376	0.024	0.038	-0.016
55377	-0.032	-0.049	-0.028

55378	-0.051	-0.046	-0.016
55379	-0.014	-0.066	-0.025
55380	-0.083	-0.019	0.038
55381	-0.041	-0.093	0.043
55382	-0.031	-0.056	0.020
55383	-0.032	-0.017	0.041
55384	0.003	0.044	0.039
55385	0.029	-0.004	0.002
55386	0.024	-0.062	-0.020
55387	0.017	0.009	-0.066
55388	0.018	-0.153	-0.074
55389	0.026	-0.097	-0.042
55390	-0.054	0.015	-0.030
55391	-0.116	-0.021	0.022
55392	-0.023	0.010	0.036
55393	0.044	0.053	0.092
55394	0.052	0.064	0.065
55395	0.072	0.093	0.018
55396	0.127	0.002	0.039
55397	0.002	-0.005	0.072
55398	-0.028	-0.035	0.061
55399	-0.064	0.022	0.056
55400	-0.057	0.091	-0.011
55401	-0.023	-0.023	-0.014
55402	0.058	-0.120	-0.028
55403	0.006	-0.095	0.026
55404	-0.091	-0.078	0.033
55405	-0.036	0.054	0.050
55406	0.012	0.043	-0.003
55407	-0.040	0.017	-0.001
55408	0.044	0.148	0.015
55409	0.074	0.076	-0.033
55410	0.037	0.072	-0.054

55411	-0.005	0.016	-0.067
55412	0.003	-0.013	-0.050
55413	0.022	-0.026	-0.010
55414	0.000	-0.000	0.000

GNSS drift parameter for profile 7

constant part in [meter] X -1.784 Y 1.684 Z 4.652

linear part in [meter] X -0.022 Y -0.002 Z -0.003

55415	-0.001	0.009	0.030
55416	-0.018	0.035	0.027
55417	-0.058	0.029	0.028
55418	0.055	0.012	-0.007
55419	0.024	0.056	0.067
55420	0.116	0.055	0.078
55421	0.052	-0.037	0.022
55422	-0.048	-0.044	-0.001
55423	0.012	-0.179	-0.059
55424	-0.028	-0.075	-0.075
55425	-0.004	-0.089	-0.076
55426	-0.162	0.024	-0.074
55427	-0.064	0.040	-0.034
55428	0.029	0.081	-0.011
55429	0.039	0.076	0.015
55430	0.103	0.015	-0.007
55431	0.120	-0.140	0.029
55432	-0.043	0.027	-0.040
55433	-0.037	0.036	0.015
55434	-0.013	-0.025	0.014
55435	-0.024	-0.021	0.055
55436	0.043	-0.058	0.039
55437	0.015	-0.071	-0.077
55438	-0.053	0.019	-0.013

55439	-0.055	0.022	-0.036
55440	-0.020	0.071	-0.017
55441	-0.001	0.037	0.008
55442	0.028	0.041	0.074
55443	0.018	-0.049	0.034
55444	-0.014	0.014	0.045
55445	0.003	0.041	0.070
55446	-0.024	0.033	-0.011
55447	-0.040	0.048	0.030
55448	0.020	-0.100	0.008
55449	0.012	0.028	-0.035
55450	0.022	0.005	-0.010
55451	-0.009	0.013	-0.048
55452	-0.016	0.045	-0.026
55453	-0.016	0.010	-0.015
55454	-0.022	0.034	-0.035
55455	-0.047	-0.006	-0.053
55456	-0.026	0.081	-0.051
55457	0.042	-0.054	0.001
55458	0.034	0.029	0.001
55459	0.038	0.021	0.049
55460	-0.031	0.035	0.018
55461	-0.012	0.043	0.040
55462	0.007	-0.063	0.002
55463	-0.013	-0.032	-0.020
55464	0.049	0.042	-0.048
55465	0.053	-0.050	-0.050
55466	-0.038	0.026	-0.007
55467	-0.071	-0.011	0.016
55468	0.021	-0.047	0.010
55469	0.002	-0.004	0.006
55470	-0.047	-0.042	0.025
55471	-0.006	0.011	0.059

55472	0.048	-0.021	-0.026
55473	0.046	-0.009	0.043
55474	0.053	-0.034	0.030
55475	-0.031	0.010	0.009
55476	-0.043	0.006	0.005
55477	0.006	-0.001	-0.003
55478	0.024	0.003	-0.038

GNSS drift parameter for profile 8

constant part in [meter] X 1.310 Y -1.234 Z 4.588

linear part in [meter] X -0.003 Y 0.015 Z 0.032

55479	0.004	0.010	-0.052
55480	0.002	-0.018	-0.023
55481	0.014	-0.018	-0.026
55482	0.013	-0.015	0.031
55483	0.015	-0.021	-0.002
55484	0.013	0.028	0.020
55485	0.009	0.014	0.026
55486	0.049	0.011	-0.049
55487	0.035	-0.047	-0.002
55488	-0.025	0.054	-0.017
55489	0.072	-0.043	0.010
55490	-0.014	-0.030	0.037
55491	-0.056	-0.043	0.038

55492	0.039	0.015	0.031
55493	0.008	-0.062	0.034
55494	-0.051	-0.001	0.069
55495	-0.035	0.010	-0.002
55496	0.033	-0.033	0.017
55497	-0.029	0.019	-0.018
55498	-0.059	-0.006	-0.050
55499	-0.067	-0.007	-0.042
55500	-0.020	-0.004	-0.022
55501	0.021	-0.020	0.038
55502	-0.081	0.019	0.014
55503	-0.118	0.029	0.047
55504	-0.009	0.045	-0.008
55505	0.014	0.030	-0.033
55506	-0.025	0.004	0.004
55507	-0.056	-0.022	-0.028
55508	-0.023	-0.030	-0.028
55509	0.070	-0.068	0.009
55510	0.096	0.029	0.037
55511	0.094	0.116	0.020
55512	-0.031	0.069	0.006
55513	0.019	0.103	-0.007
55514	0.036	0.085	-0.033
55515	-0.011	0.016	-0.000
55516	0.002	0.045	0.003
55517	0.012	0.004	-0.010
55518	0.004	-0.012	-0.033
55519	-0.022	-0.026	-0.018
55520	0.020	-0.016	-0.016
55521	-0.001	0.013	-0.024
55522	-0.008	-0.040	-0.013
55523	0.022	0.017	0.022
55524	0.082	-0.068	0.016

55525	0.044	-0.021	0.021
55526	-0.007	-0.020	-0.026
55527	-0.036	0.058	-0.004
55528	-0.036	-0.044	-0.048
55529	-0.042	-0.060	-0.050
55530	0.089	-0.004	0.030
55531	0.077	0.016	0.027
55532	0.009	0.047	0.020
55533	-0.013	0.035	0.011
55534	-0.081	0.064	-0.023
55535	-0.004	-0.071	0.000
55536	-0.014	-0.077	0.044
55537	-0.034	0.009	0.019
55538	-0.001	-0.041	-0.005
55539	-0.023	-0.033	-0.011
55540	0.040	0.010	-0.000
55541	-0.019	-0.008	0.002
55542	-0.006	0.005	0.021

max standard deviations of terrain points

x	0.356 [meter] at point	70004428
y	0.105 [meter] at point	20000155
z	1.045 [meter] at point	70004428

mean standard deviations of terrain points

x	0.026
y	0.022
z	0.085

exterior orientation parameters (px, py, pz in [meter] omega,phi,kappa in [deg])

rotations from terrain to photo (rotated axes)

photo ID	px	py	pz	omega	phi	kappa
55101	517728.923	6731686.781	2236.818	1.48143	0.21095	178.55725
55102	517745.665	6731239.188	2235.012	1.26030	0.50789	178.61330
55103	517764.793	6730745.429	2237.456	1.02793	-0.28291	178.35537
55104	517782.030	6730262.489	2236.237	1.72742	0.05789	178.44158
55105	517799.920	6729749.012	2236.728	0.67396	-0.74580	178.07924
55106	517811.661	6729300.578	2239.466	1.61667	0.05436	177.79584
55107	517821.972	6728856.357	2236.329	1.67331	-0.33342	177.84624
55108	517831.908	6728360.626	2237.737	1.24012	0.65006	177.84616
55109	517843.892	6727847.023	2235.904	2.04631	-0.20481	177.74486
55110	517854.530	6727370.880	2232.687	0.99765	0.19845	177.89047
55111	517865.886	6726886.123	2234.560	1.22987	0.44247	178.34678
55112	517879.821	6726447.371	2232.650	1.68424	2.23205	179.19910
55113	517904.985	6725955.373	2233.320	0.63004	0.62199	-179.93586
55114	517933.641	6725443.109	2235.867	1.47823	-0.25087	179.68053
55115	517960.330	6724909.566	2235.160	0.85060	-1.19805	179.30578
55116	517980.668	6724395.272	2241.644	1.47038	-0.36318	178.65579
55117	517995.196	6723956.818	2236.047	1.93012	-1.38665	178.19957
55118	518005.278	6723439.065	2236.630	0.60941	-0.21517	177.58970
55119	518012.304	6722932.807	2236.718	2.25709	2.52129	177.12774
55120	518027.334	6722391.330	2235.503	0.75363	1.86210	178.52098
55121	518051.027	6721863.067	2235.746	2.06568	0.40040	179.54695
55122	518080.214	6721326.336	2233.226	0.80852	0.26190	-179.50353
55123	518111.750	6720792.585	2237.665	1.70615	-0.23500	-179.88597
55124	518136.851	6720353.876	2235.049	1.61723	0.36822	179.83508
55125	518167.194	6719840.481	2236.151	1.00826	-0.49473	-179.86558
55126	518193.599	6719355.649	2234.791	1.79251	0.08473	179.87370
55127	518225.168	6718755.062	2233.001	0.65210	-0.35266	179.94049
55128	518249.361	6718257.091	2237.340	1.39073	-0.06571	179.32409
55129	518271.588	6717779.434	2236.071	1.71559	0.06897	179.03664
55130	518296.455	6717248.392	2235.655	0.90579	0.30532	179.25078
55131	518322.582	6716723.542	2233.412	1.72446	0.10493	179.76940

55188	516375.343	6726699.341	2236.928	1.31643	-0.83234	178.77762
55189	516392.362	6726199.810	2234.716	0.57635	-0.00901	178.57334
55190	516408.016	6725747.587	2236.870	0.70963	-0.15040	178.56368
55191	516425.137	6725265.257	2234.721	1.33662	-0.13230	178.90856
55192	516441.590	6724817.152	2235.242	0.27878	-0.32883	178.59552
55193	516457.960	6724370.030	2238.896	0.93048	0.01571	178.60095
55194	516477.771	6723878.639	2236.134	1.26888	1.42559	178.83867
55195	516504.885	6723404.138	2238.090	0.42226	0.57157	-179.75594
55196	516536.931	6722962.742	2238.278	1.70971	0.22920	-178.75528
55197	516577.839	6722425.223	2235.632	0.45416	0.25069	-179.31317
55198	516611.322	6721963.744	2239.067	1.37457	-1.21303	-179.77395
55199	516644.281	6721472.542	2235.004	1.05641	-1.20446	-179.70298
55200	516673.837	6720990.137	2237.933	0.79071	-0.52972	179.31730
55201	516704.042	6720470.987	2236.888	1.64577	-1.01395	178.92645
55202	516732.887	6719929.706	2237.335	0.77976	-0.96458	179.44370
55203	516755.151	6719479.456	2236.680	1.53139	-0.96653	178.84178
55204	516779.503	6718958.358	2235.760	1.13669	0.01708	179.11321
55205	516804.091	6718467.616	2239.235	1.35755	-0.36218	179.47813
55206	516828.172	6717980.079	2237.505	2.22942	-0.88014	179.26582
55207	516850.813	6717443.601	2236.529	1.09475	-0.43976	178.98778
55208	516869.704	6716964.352	2235.436	2.17861	-1.03526	178.77452
55209	516885.858	6716485.722	2229.998	1.25331	-0.81396	178.28595
55210	514018.433	6716046.424	2231.157	-1.54148	0.02462	11.02357
55211	513978.405	6716546.818	2232.541	-2.03064	-0.20733	10.75425
55212	513940.608	6717019.535	2228.079	-1.40839	0.94223	9.61975
55213	513908.575	6717505.423	2231.930	-1.23766	1.16543	9.05165
55214	513885.584	6717995.024	2229.720	-0.78071	0.89492	8.13756
55215	513872.681	6718423.938	2236.793	-0.64563	0.87891	7.38925
55216	513864.260	6718870.317	2235.093	-1.10479	-0.32675	7.09192
55217	513854.711	6719352.307	2239.457	-0.75929	0.32355	6.94760
55218	513847.216	6719784.868	2235.864	-1.65679	-0.58080	6.82130
55219	513838.027	6720176.964	2237.029	-0.35065	-0.66348	7.48200
55220	513823.147	6720634.128	2236.623	-2.24473	0.02138	7.78017
55221	513808.092	6721101.808	2234.053	-0.61743	-0.19694	7.58142
55222	513793.094	6721553.354	2234.663	-1.77259	0.05443	7.76635
55223	513778.437	6722004.368	2230.234	-0.87570	-0.54655	7.80491
55224	513762.944	6722438.418	2234.479	-0.90559	-0.10421	8.02086
55225	513746.150	6722885.312	2233.015	-1.34282	-0.07102	8.14459
55226	513728.479	6723339.936	2236.715	-0.53568	-0.22358	8.45301

55227	513710.432	6723796.130	2236.378	-2.02303	0.53621	8.25820
55228	513695.199	6724282.452	2235.955	-0.60182	-0.18367	7.81447
55229	513679.437	6724790.126	2235.693	-1.93535	-0.01702	7.94144
55230	513664.752	6725253.726	2233.135	-0.65435	-0.48670	7.94494
55231	513647.770	6725720.785	2236.898	-1.38000	-0.06893	8.14221
55232	513630.427	6726176.865	2232.717	-1.55013	-0.33490	8.12044
55233	513612.598	6726612.723	2233.039	-0.52589	-0.26116	8.30827
55234	514952.337	6727262.587	2237.102	1.33461	1.37249	179.50234
55235	514981.431	6726758.720	2238.853	0.73829	0.09704	-179.55637
55236	515012.915	6726257.723	2236.156	1.57766	-1.05542	-179.93101
55237	515044.335	6725704.364	2236.894	0.52609	-1.06338	-179.89554
55238	515070.045	6725191.061	2235.175	1.51740	-1.62279	179.44555
55239	515085.961	6724697.527	2238.651	0.34670	-0.78600	177.90082
55240	515095.515	6724239.083	2239.189	1.76208	-0.91987	177.65142
55241	515102.694	6723820.437	2236.887	1.00569	0.38394	177.66170
55242	515114.384	6723345.939	2240.897	1.41486	0.76673	178.24045
55243	515133.357	6722847.486	2236.338	1.97149	0.43950	179.23151
55244	515158.684	6722340.617	2235.093	1.16223	0.62013	179.94633
55245	515186.282	6721879.119	2231.615	1.99170	0.06516	-179.73484
55246	515223.349	6721319.708	2230.410	0.32720	0.25865	-179.22080
55247	515261.347	6720811.016	2231.003	1.62088	-0.23056	-178.61826
55248	515296.945	6720316.164	2231.678	-0.10822	-0.68877	-179.53339
55249	515326.038	6719865.300	2239.438	1.10893	-1.30728	-179.63718
55250	515349.847	6719437.967	2238.300	1.48391	-0.71860	179.86065
55251	515373.819	6718939.219	2242.599	1.26219	-1.01531	179.32906
55252	515393.544	6718453.172	2239.459	2.33768	-0.63297	178.98347
55253	515410.661	6717980.091	2236.708	1.05413	-0.85660	178.71808
55254	515426.807	6717419.375	2234.876	2.03918	-1.04626	178.15445
55255	515436.702	6716905.474	2232.274	0.75304	-4.42217	177.62215
55298	518622.049	6741946.395	2246.577	1.43853	-0.69007	179.02695
55299	518630.321	6741452.893	2245.797	1.23810	0.28208	178.75924
55300	518638.007	6740965.102	2248.319	1.39991	0.09997	178.95926
55301	518647.868	6740478.829	2245.758	1.49925	0.91690	-179.87680
55302	518667.688	6739989.721	2245.686	1.20702	0.94435	-178.81880
55303	518697.032	6739499.384	2244.137	1.61316	0.99090	-178.28960
55304	518732.482	6739028.341	2242.800	1.12501	-0.04233	-177.70422
55305	518769.999	6738570.396	2244.451	1.18290	-0.22512	-177.44917
55306	518807.375	6738111.607	2244.110	1.33841	-0.18795	-178.28631
55307	518841.564	6737655.069	2245.808	0.91213	-0.89040	-178.65828

55308	518872.169	6737185.166	2246.854	1.52189	-0.29837	-179.27312
55309	518899.514	6736699.181	2245.926	1.00957	-0.23541	-179.67303
55310	518922.585	6736215.885	2247.459	1.48697	-0.93054	179.75202
55311	518938.682	6735728.649	2244.277	1.28729	-0.55666	178.31387
55312	518945.915	6735245.403	2246.638	1.26685	-0.22829	177.63566
55313	518948.633	6734759.097	2244.685	1.39450	0.50345	178.10812
55314	518952.951	6734268.646	2246.445	1.00764	0.35016	178.34748
55315	518959.669	6733782.800	2246.042	1.76857	0.11247	179.11028
55316	518968.719	6733337.069	2244.412	1.17417	0.46235	179.35969
55317	518981.938	6732898.194	2245.038	1.47816	0.75790	-179.45545
55318	519002.191	6732456.805	2242.664	1.32648	0.91068	-179.09383
55319	519026.898	6732017.028	2244.292	0.95755	0.55517	-179.25266
55320	519055.989	6731558.093	2245.233	1.29216	0.33181	-178.90807
55321	519089.235	6731074.310	2243.361	1.35634	-0.78533	-178.81874
55322	519119.007	6730590.499	2245.822	0.86170	-0.30429	-179.67045
55323	519144.808	6730108.449	2246.540	1.43187	-0.50911	179.92840
55324	519167.189	6729624.392	2246.029	1.22775	0.10512	179.77002
55325	519187.423	6729140.894	2246.500	1.50373	-0.50368	179.56108
55326	519204.818	6728654.834	2244.199	1.11061	-0.27906	179.26071
55327	519220.707	6728169.617	2245.941	1.28364	0.12775	179.20391
55328	519238.098	6727683.149	2245.424	1.17091	-0.05528	179.59490
55329	519256.599	6727198.994	2247.173	1.59379	0.66952	179.87326
55330	519279.674	6726713.809	2246.897	1.38504	0.07390	-179.20317
55331	519306.636	6726227.755	2246.428	1.43076	0.38536	-178.96859
55332	519337.646	6725740.632	2246.237	1.56001	-0.64617	-178.49618
55333	519367.641	6725252.674	2244.223	1.65702	-0.14016	-178.68987
55334	519397.829	6724763.613	2245.331	1.28742	-0.07510	-178.46354
55335	519428.915	6724275.756	2244.424	1.82818	-0.47226	-178.54372
55336	519458.821	6723784.526	2243.189	1.31754	-0.46315	-178.71322
55337	519487.345	6723300.152	2245.245	1.40838	-0.15007	-178.69826
55338	519516.384	6722813.983	2243.439	1.54552	-0.49828	-178.54359
55339	519543.652	6722328.210	2243.136	1.29805	-0.51614	-179.02725
55340	519568.442	6721844.332	2244.644	1.07770	-0.40428	-179.21412
55341	519592.133	6721353.840	2245.775	1.45886	-0.44446	-179.42180
55342	519614.417	6720865.485	2245.130	1.44840	-0.37669	-179.52521
55343	519635.855	6720379.288	2245.931	1.16503	-0.08640	-179.49756
55344	519658.063	6719891.748	2246.944	1.55331	-0.64750	-179.44909
55345	519678.433	6719404.393	2244.637	1.46839	-0.30540	-179.77715
55346	519698.625	6718915.259	2245.806	1.10003	-0.46815	-179.71094

55347	519717.629	6718428.236	2246.316	1.79392	-0.59191	-179.86225
55348	519734.253	6717937.024	2244.422	1.40929	-0.18014	-179.96582
55349	519750.419	6717446.947	2247.229	1.58679	-0.57212	179.83222
55350	519765.233	6716955.430	2245.029	1.61862	-0.43870	179.58656
55351	519779.272	6716456.467	2245.338	1.48478	0.16467	179.58283
55352	519795.519	6715964.071	2244.742	1.59949	-0.33636	-179.99969
55353	519812.851	6715469.602	2243.457	1.54685	0.37681	-179.75986
55354	519832.388	6714974.044	2243.988	1.31968	-0.71121	-179.47418
55355	519850.499	6714479.726	2244.858	1.60943	-0.08423	-179.71343
55356	519869.111	6713983.241	2243.567	1.50021	-0.40958	-179.88486
55357	522627.951	6714841.610	2250.107	-1.35443	4.62413	4.59859
55358	522615.720	6715323.979	2246.723	-1.32368	-0.00057	2.52723
55359	522616.227	6715797.826	2247.709	-0.57509	-0.38675	1.29640
55360	522625.875	6716270.508	2248.049	-1.35655	-0.34184	0.42908
55361	522639.047	6716748.942	2247.689	-0.65169	-1.38184	3.69825
55362	522642.511	6717233.106	2249.222	-1.30931	0.15707	5.15856
55363	522637.690	6717722.622	2246.873	-1.30138	-0.46010	7.20336
55364	522624.392	6718217.733	2246.388	-0.77528	-0.59962	7.13942
55365	522604.723	6718710.247	2245.750	-1.41550	-0.42801	7.31437
55366	522579.622	6719202.908	2244.341	-0.98682	0.27453	7.72487
55367	522553.610	6719696.570	2247.329	-0.84701	-0.02502	7.40497
55368	522529.168	6720188.789	2248.165	-1.53919	0.64446	6.80030
55369	522508.478	6720685.091	2246.763	-1.26317	0.42875	6.64416
55370	522491.205	6721186.828	2246.340	-1.28100	0.35786	6.47006
55371	522474.938	6721685.349	2245.511	-1.31130	1.17636	6.64712
55372	522459.864	6722185.202	2245.522	-1.22145	-0.30087	7.41688
55373	522441.057	6722679.344	2245.123	-1.10026	-0.16921	7.24969
55374	522420.075	6723171.095	2245.782	-1.07961	0.45234	7.67382
55375	522397.148	6723665.177	2246.543	-1.22865	0.21497	8.01804
55376	522372.897	6724154.230	2246.924	-1.22630	0.93596	7.76213
55377	522350.398	6724644.817	2248.404	-1.17201	0.44675	7.75611
55378	522327.525	6725134.750	2248.753	-1.39866	0.23442	8.07516
55379	522302.803	6725627.642	2247.557	-1.46955	0.37582	8.33390
55380	522279.319	6726073.643	2247.136	-1.30060	0.74863	8.45081
55381	522256.493	6726521.882	2247.195	-1.58296	1.03168	8.23834
55382	522235.827	6726964.713	2245.181	-1.53612	0.40329	7.94842
55383	522214.800	6727410.159	2244.897	-1.02335	0.67160	8.15058
55384	522194.060	6727850.886	2245.579	-1.33767	0.54866	8.03891
55385	522173.588	6728289.816	2244.631	-1.22848	0.40965	8.07669

55386	522152.512	6728726.785	2246.758	-0.89121	0.40297	8.24725
55387	522130.154	6729161.482	2248.802	-1.47381	0.10667	9.32750
55388	522106.172	6729588.743	2247.978	-1.13468	-0.22130	8.96820
55389	522080.582	6730016.445	2249.117	-1.31595	0.57114	8.98643
55390	522054.215	6730443.156	2247.676	-1.60963	-0.11541	9.20726
55391	522025.260	6730870.900	2246.751	-1.17465	0.44489	9.45805
55392	521996.845	6731302.340	2246.826	-1.73200	1.75421	8.80350
55393	521974.303	6731730.388	2245.495	-1.44080	2.69627	7.76004
55394	521958.710	6732157.633	2247.578	-0.91794	1.52328	6.82342
55395	521948.223	6732582.796	2249.070	-1.40051	0.56546	6.21123
55396	521940.086	6733045.102	2247.265	-1.36409	0.86541	5.78112
55397	521935.193	6733521.324	2247.523	-1.02930	0.65080	5.34782
55398	521931.922	6733996.633	2247.056	-1.45082	-0.31109	7.12928
55399	521920.501	6734470.623	2244.860	-1.00724	0.22199	8.74994
55400	521902.326	6734943.547	2247.551	-0.89248	-0.54436	8.11856
55401	521879.752	6735414.895	2246.452	-1.85367	0.63837	10.00243
55402	521847.634	6735887.013	2244.881	-1.10266	0.50105	11.20282
55403	521806.304	6736357.821	2246.908	-1.53807	0.76726	11.67266
55404	521762.409	6736827.068	2245.598	-1.07568	0.49236	9.51653
55405	521725.895	6737291.373	2249.846	-0.81253	0.92063	7.98601
55406	521698.353	6737757.738	2250.041	-1.63916	0.54185	6.96562
55407	521677.141	6738226.898	2250.434	-0.62351	-0.16211	6.60913
55408	521659.752	6738694.252	2253.166	-1.44257	0.62765	6.30399
55409	521646.336	6739155.804	2250.344	-1.41455	0.43759	5.96623
55410	521636.096	6739580.670	2249.551	-1.08852	0.18824	5.49206
55411	521626.859	6740004.429	2249.784	-1.29468	-0.17609	5.32487
55412	521617.544	6740428.585	2248.353	-1.30656	0.27914	5.29410
55413	521609.436	6740849.919	2249.099	-0.96669	0.02011	4.87288
55414	521601.805	6741266.837	2248.474	-1.20039	0.56185	4.31933
55415	522916.229	6742391.672	2252.487	1.31713	-1.94799	178.20627
55416	522913.919	6741923.881	2250.949	0.73871	-0.68329	179.00439
55417	522911.032	6741469.080	2251.761	1.23300	-0.27173	179.29145
55418	522913.383	6741012.496	2250.059	1.15119	1.61522	-179.88276
55419	522932.448	6740549.897	2250.069	0.81337	0.79316	-179.06836
55420	522965.148	6740090.517	2252.326	1.28289	1.01210	-178.78050
55421	523003.774	6739627.170	2249.225	1.44911	0.73306	-178.03430
55422	523041.938	6739162.980	2250.364	0.90390	0.95803	-178.55869
55423	523074.129	6738700.357	2250.701	1.41324	0.28802	-179.27812
55424	523099.595	6738235.835	2249.814	1.02878	-0.36957	-179.41891

55425	523120.215	6737759.642	2251.376	1.22636	-0.47573	-179.61631
55426	523136.261	6737274.158	2250.438	1.24278	-0.56008	179.77323
55427	523152.626	6736783.732	2251.293	1.20390	-0.46027	-179.21920
55428	523175.997	6736298.421	2250.668	1.40451	0.21332	-178.78821
55429	523205.375	6735810.068	2250.218	1.15743	0.84338	-178.40335
55430	523243.499	6735322.016	2250.343	1.43743	1.00836	-177.51687
55431	523285.861	6734833.634	2249.010	1.33843	0.54825	-178.99054
55432	523324.008	6734342.236	2250.013	1.47043	-0.05295	-178.42904
55433	523355.613	6733852.150	2247.120	1.37270	-0.98712	179.62286
55434	523374.166	6733362.906	2249.090	1.11905	-0.49196	178.94091
55435	523383.980	6732875.456	2247.792	1.36451	-1.51668	178.87060
55436	523388.281	6732389.000	2248.361	0.96989	-0.82008	178.34956
55437	523390.048	6731932.590	2250.332	1.42493	1.06822	179.31805
55438	523399.504	6731487.091	2248.947	1.54415	-0.20968	-179.57938
55439	523416.407	6731058.261	2248.603	1.18683	0.53952	-179.17306
55440	523438.934	6730640.234	2247.686	1.71155	0.77815	-179.03688
55441	523466.107	6730225.859	2244.215	1.38331	-0.12964	-178.21696
55442	523494.903	6729814.477	2244.737	0.75511	-0.61417	-178.81567
55443	523521.490	6729404.857	2246.959	1.13583	0.69816	-178.96384
55444	523548.363	6728992.240	2246.317	1.07485	0.33397	-179.12330
55445	523579.633	6728518.269	2249.215	0.58141	-0.40493	-179.26419
55446	523607.258	6728073.110	2250.657	1.51064	0.11037	-179.23848
55447	523631.804	6727660.147	2248.519	0.89953	-0.33801	-179.37477
55448	523653.381	6727260.689	2250.924	1.04373	0.08513	-179.63644
55449	523674.206	6726863.234	2250.014	1.60392	0.21123	-179.49057
55450	523694.932	6726463.064	2249.903	0.91702	-0.21756	-179.63212
55451	523714.036	6726067.258	2251.547	1.55220	0.21672	-179.56988
55452	523733.135	6725669.110	2249.137	1.47660	-0.71800	-179.53489
55453	523749.505	6725267.350	2249.215	1.18487	-0.44151	179.97795
55454	523763.629	6724865.997	2248.871	1.64718	-0.43572	179.80241
55455	523775.697	6724467.020	2246.612	1.33640	-0.34264	179.79059
55456	523787.428	6724063.649	2247.496	1.07236	0.12980	-179.89348
55457	523800.233	6723662.136	2247.574	1.35944	-0.09473	179.83631
55458	523813.161	6723259.316	2245.875	1.29276	0.56144	-179.76212
55459	523828.496	6722857.724	2246.856	0.87981	-0.83009	-179.39405
55460	523846.497	6722385.282	2247.156	1.27871	-0.54956	-179.14707
55461	523864.840	6721912.685	2247.909	0.89853	0.13864	-179.19860
55462	523883.957	6721440.993	2248.714	1.51536	0.48616	-179.60702
55463	523907.094	6720971.013	2246.920	1.15024	-0.23885	-178.85325

55464	523935.483	6720499.865	2249.959	1.01751	0.70572	-177.93443
55465	523970.698	6720029.498	2247.498	1.81928	-0.04360	-177.26682
55466	524007.530	6719556.906	2245.807	0.75829	-0.84729	-178.01328
55467	524039.460	6719083.936	2247.763	1.42436	-1.25817	-179.01793
55468	524063.581	6718616.461	2246.728	0.88086	-0.90048	179.99301
55469	524081.188	6718146.542	2249.700	1.08506	-0.00750	179.52513
55470	524095.946	6717677.231	2247.825	1.42610	-0.07509	179.16670
55471	524110.143	6717208.410	2248.177	0.55051	-0.41150	-179.61034
55472	524128.705	6716742.465	2248.066	1.45172	0.70025	-179.46055
55473	524151.285	6716273.838	2246.244	0.51213	0.00510	-179.38341
55474	524176.065	6715806.990	2248.268	1.08084	-0.12751	-178.85859
55475	524201.552	6715339.558	2247.465	0.93894	-0.71165	-179.05924
55476	524223.589	6714872.826	2249.121	0.73372	-0.55799	-179.58155
55477	524242.950	6714406.480	2247.795	1.02619	-0.64686	-179.93536
55478	524259.762	6713938.809	2248.738	0.50489	0.10705	179.83105
55479	521387.825	6713310.209	2249.963	-0.63416	-0.43421	7.18296
55480	521368.082	6713786.881	2252.414	-0.90356	0.20073	7.27709
55481	521348.144	6714253.894	2250.694	-1.50002	0.49412	7.39588
55482	521329.362	6714721.375	2249.150	-0.88991	0.57288	6.98206
55483	521312.091	6715192.966	2249.814	-1.04486	-0.08747	6.93612
55484	521293.424	6715667.099	2249.199	-1.07646	0.24703	7.10902
55485	521274.681	6716140.507	2249.810	-0.82506	0.30368	6.90004
55486	521256.508	6716613.342	2250.074	-1.35101	-0.23112	6.82157
55487	521236.805	6717084.566	2247.920	-0.55862	0.34681	6.91574
55488	521216.638	6717556.094	2250.939	-0.88781	0.07579	7.09757
55489	521195.807	6718028.281	2249.930	-1.44192	0.73543	7.06246
55490	521177.036	6718502.986	2249.304	-0.86960	0.53407	6.57864
55491	521159.808	6718974.726	2250.773	-0.83595	0.19744	6.68296
55492	521142.505	6719449.710	2249.870	-1.38915	0.07117	6.47773
55493	521124.056	6719925.568	2248.959	-0.44284	-0.77990	6.99098
55494	521100.755	6720399.821	2253.072	-1.01269	0.12539	7.63239
55495	521075.634	6720876.377	2250.264	-1.42139	-0.27746	7.71655
55496	521048.429	6721354.015	2251.540	-0.63410	0.32704	8.01301
55497	521020.755	6721830.672	2251.501	-1.81755	0.39639	8.13143
55498	520993.210	6722308.683	2247.947	-0.92199	0.10138	8.02621
55499	520965.390	6722788.286	2251.144	-1.14359	-0.00688	7.89882
55500	520936.877	6723264.160	2249.249	-1.46582	0.02590	8.31508
55501	520907.271	6723743.456	2250.324	-0.92575	0.42887	8.23502
55502	520878.117	6724222.821	2252.217	-1.48645	-0.03147	8.33142

55503	520848.202	6724700.138	2250.477	-1.52104	0.50968	8.38507
55504	520819.440	6725181.971	2250.260	-1.44170	0.29870	8.11342
55505	520791.667	6725665.517	2248.183	-1.58164	0.22581	7.98958
55506	520765.968	6726150.634	2246.264	-1.17480	1.22541	7.19842
55507	520748.326	6726633.905	2248.374	-0.73663	0.51227	5.40446
55508	520740.368	6727117.308	2250.140	-1.14354	0.42759	3.94232
55509	520741.428	6727603.149	2249.909	-1.05886	0.61824	3.26733
55510	520748.809	6728083.901	2251.003	-0.92623	0.63831	2.46401
55511	520760.526	6728562.059	2249.195	-1.30588	0.67135	2.53902
55512	520774.459	6729034.453	2248.482	-0.58678	-0.72608	3.36493
55513	520784.868	6729506.640	2250.260	-0.94331	-0.55235	4.30904
55514	520787.481	6729973.928	2248.997	-1.05605	-0.42997	6.48745
55515	520779.357	6730439.728	2249.271	-0.57039	0.20960	8.21072
55516	520760.949	6730905.339	2248.995	-1.24240	0.56837	8.21411
55517	520735.951	6731370.788	2248.462	-0.28599	-0.34412	9.13770
55518	520706.337	6731814.337	2249.376	-0.96815	-0.42155	9.17903
55519	520674.589	6732236.132	2248.955	-0.27638	-0.42720	9.97582
55520	520639.216	6732650.488	2251.545	-0.21687	-0.27247	10.62022
55521	520600.454	6733061.083	2251.178	-0.63702	-0.27039	11.01036
55522	520559.746	6733467.205	2250.242	-0.20635	0.37184	10.83281
55523	520518.947	6733872.955	2251.964	-0.29342	1.67996	9.57339
55524	520484.029	6734275.084	2253.342	-0.17688	0.84088	8.27027
55525	520456.478	6734674.645	2255.015	-0.20653	0.90998	7.12034
55526	520435.312	6735076.480	2255.930	-0.10139	-0.06358	6.65080
55527	520417.635	6735474.969	2257.343	-0.14954	0.56793	5.95597
55528	520403.751	6735875.687	2257.295	-0.37870	-0.41322	5.77567
55529	520390.319	6736274.480	2255.190	-0.47122	-0.29748	5.82922
55530	520377.328	6736670.886	2255.549	0.06054	0.29585	5.80934
55531	520366.632	6737069.528	2256.272	-0.72415	0.35218	5.25815
55532	520358.022	6737469.555	2253.597	-0.28472	0.53673	6.87367
55533	520347.050	6737865.407	2255.514	0.01357	0.32481	6.53438
55534	520333.904	6738263.859	2254.673	-0.85286	-0.00418	7.19007
55535	520319.470	6738661.188	2252.585	0.00327	0.14746	6.95156
55536	520304.870	6739061.035	2253.558	-0.24360	0.78881	7.07338
55537	520291.064	6739460.545	2252.139	-0.33851	-0.09833	6.77050
55538	520276.128	6739858.517	2252.583	0.20105	0.22141	7.21992
55539	520260.271	6740254.390	2255.345	-0.12485	0.01207	6.81463
55540	520243.338	6740650.114	2255.639	-0.36479	0.48360	7.09330
55541	520225.402	6741043.581	2256.795	0.04047	-0.02918	7.40197

55542 520206.358 6741437.972 2258.064 -0.66291 0.32569 7.24472

=====

WARNING: Less than 11 measured points in following photo(s):

55414: 2 points

WARNING: Suspect orientation angle(s) (> 4.50000 [deg]) in following photo(s):

photo	omega	phi	kappa
-------	-------	-----	-------

55357	-1.35443	4.62413	4.59859
-------	----------	---------	---------

Sigma naught : 0.8 [micron] = 0.2 [pixel in level 0]

DADOS DA AEROTRIANGULAÇÃO CANOAS_SAO LEOPOLDO_NOVO HAMBURGO

Number of photos : 1155

Number of strips : 25

Photo scale : 1:39336

Mean terrain height [m] : 51

Automatic blunder detection : OFF

Use all adjusted points in project file
as control (absolute mode) : OFF

Control parameter for block adjustment :

Selfcalibration : ON

Number of selfcalibration parameters : 44

Write calibrated camera to project : OFF

GNSS-Mode : ON

Drift-Mode : ON

drift per strip : ON

drift for X,Y,Z : ON,ON,ON

enable shifts only : OFF

IMU-Mode : OFF

Earth's curvature correction : ON

Atmospheric correction : ON

Do not eliminate manual points : OFF

Do not eliminate GNSS : ON

Standard deviations (a-priori) :

Ground control (planimetry) [m]

Set

0 (=default)	: 0.042
1	: 10000.000

Ground control (height) [m]

Set

0 (=default)	: 0.142
1	: 10000.000

Automatic image points [mm]

Set

0 (=default)	: 0.002
--------------	---------

Image points of ground control and manual measurements [mm] : 0.002

GNSS X Y Z [m] : 0.100 0.100 0.100

Used Cameras in block:

1 PHASEONE_NEW_CALIBRATION

Distortion

: Table

Tie Point Generator

created	95 observations for photo	53050
created	155 observations for photo	53051
created	180 observations for photo	53052
created	192 observations for photo	53053
created	209 observations for photo	53054
created	231 observations for photo	53055
created	253 observations for photo	53056
created	231 observations for photo	53057
created	209 observations for photo	53058
created	240 observations for photo	53059
created	171 observations for photo	53060
created	197 observations for photo	53061
created	200 observations for photo	53062
created	191 observations for photo	53063
created	155 observations for photo	53064
created	180 observations for photo	53065
created	256 observations for photo	53066
created	280 observations for photo	53067
created	273 observations for photo	53068

created	298 observations for photo	53069
created	298 observations for photo	53070
created	314 observations for photo	53071
created	267 observations for photo	53072
created	255 observations for photo	53073
created	271 observations for photo	53074
created	283 observations for photo	53075
created	285 observations for photo	53076
created	278 observations for photo	53077
created	272 observations for photo	53078
created	290 observations for photo	53079
created	275 observations for photo	53080
created	268 observations for photo	53081
created	231 observations for photo	53082
created	127 observations for photo	53083
created	138 observations for photo	53084
created	103 observations for photo	53085
created	179 observations for photo	53086
created	185 observations for photo	53087
created	230 observations for photo	53088
created	267 observations for photo	53089
created	274 observations for photo	53090
created	265 observations for photo	53091
created	265 observations for photo	53092
created	244 observations for photo	53093
created	236 observations for photo	53094
created	224 observations for photo	53095
created	226 observations for photo	53096
created	236 observations for photo	53097
created	270 observations for photo	53098
created	260 observations for photo	53099
created	247 observations for photo	53100
created	193 observations for photo	53101

created	159 observations for photo	53102
created	117 observations for photo	53103
created	143 observations for photo	53104
created	197 observations for photo	53105
created	255 observations for photo	53106
created	261 observations for photo	53107
created	295 observations for photo	53108
created	268 observations for photo	53109
created	235 observations for photo	53110
created	208 observations for photo	53111
created	216 observations for photo	53112
created	321 observations for photo	53113
created	412 observations for photo	53114
created	276 observations for photo	53115
created	413 observations for photo	53116
created	339 observations for photo	53117
created	272 observations for photo	53118
created	241 observations for photo	53119
created	249 observations for photo	53120
created	227 observations for photo	53121
created	233 observations for photo	53122
created	229 observations for photo	53123
created	238 observations for photo	53124
created	192 observations for photo	53125
created	185 observations for photo	53126
created	156 observations for photo	53127
created	156 observations for photo	53129
created	179 observations for photo	53130
created	203 observations for photo	53131
created	294 observations for photo	53132
created	332 observations for photo	53133
created	234 observations for photo	53134
created	406 observations for photo	53135

created	363 observations for photo	53136
created	225 observations for photo	53137
created	90 observations for photo	53138
created	165 observations for photo	53141
created	209 observations for photo	53142
created	292 observations for photo	53143
created	347 observations for photo	53144
created	351 observations for photo	53145
created	346 observations for photo	53146
created	321 observations for photo	53147
created	287 observations for photo	53148
created	252 observations for photo	53149
created	241 observations for photo	53150
created	262 observations for photo	53151
created	303 observations for photo	53152
created	302 observations for photo	53153
created	292 observations for photo	53154
created	270 observations for photo	53155
created	229 observations for photo	53156
created	234 observations for photo	53157
created	228 observations for photo	53158
created	236 observations for photo	53159
created	244 observations for photo	53160
created	276 observations for photo	53161
created	280 observations for photo	53162
created	248 observations for photo	53163
created	258 observations for photo	53164
created	260 observations for photo	53165
created	267 observations for photo	53166
created	242 observations for photo	53167
created	243 observations for photo	53168
created	253 observations for photo	53169
created	252 observations for photo	53170

created	233 observations for photo	53171
created	224 observations for photo	53172
created	229 observations for photo	53173
created	251 observations for photo	53174
created	248 observations for photo	53175
created	279 observations for photo	53176
created	262 observations for photo	53177
created	266 observations for photo	53178
created	265 observations for photo	53179
created	228 observations for photo	53180
created	249 observations for photo	53181
created	232 observations for photo	53182
created	224 observations for photo	53183
created	189 observations for photo	53184
created	210 observations for photo	53185
created	162 observations for photo	53186
created	195 observations for photo	53187
created	182 observations for photo	53188
created	226 observations for photo	53189
created	270 observations for photo	53190
created	288 observations for photo	53191
created	279 observations for photo	53192
created	213 observations for photo	53193
created	218 observations for photo	53194
created	227 observations for photo	53195
created	262 observations for photo	53196
created	220 observations for photo	53197
created	210 observations for photo	53198
created	178 observations for photo	53199
created	215 observations for photo	53200
created	207 observations for photo	53201
created	184 observations for photo	53202
created	190 observations for photo	53203

created	179 observations for photo	53204
created	157 observations for photo	53205
created	105 observations for photo	53206
created	171 observations for photo	53207
created	171 observations for photo	53208
created	197 observations for photo	53209
created	159 observations for photo	53210
created	171 observations for photo	53211
created	151 observations for photo	53212
created	171 observations for photo	53213
created	183 observations for photo	53214
created	216 observations for photo	53215
created	206 observations for photo	53216
created	229 observations for photo	53217
created	208 observations for photo	53218
created	279 observations for photo	53219
created	287 observations for photo	53220
created	294 observations for photo	53221
created	291 observations for photo	53222
created	305 observations for photo	53223
created	263 observations for photo	53224
created	279 observations for photo	53225
created	281 observations for photo	53226
created	248 observations for photo	53227
created	205 observations for photo	53228
created	180 observations for photo	53229
created	176 observations for photo	53230
created	239 observations for photo	53231
created	246 observations for photo	53232
created	264 observations for photo	53233
created	270 observations for photo	53234
created	260 observations for photo	53235
created	231 observations for photo	53236

created	212 observations for photo	53237
created	205 observations for photo	53238
created	184 observations for photo	53239
created	209 observations for photo	53240
created	179 observations for photo	53241
created	205 observations for photo	53242
created	229 observations for photo	53243
created	224 observations for photo	53244
created	216 observations for photo	53245
created	210 observations for photo	53246
created	194 observations for photo	53247
created	176 observations for photo	53248
created	170 observations for photo	53249
created	127 observations for photo	53250
created	145 observations for photo	53251
created	153 observations for photo	53252
created	169 observations for photo	53253
created	167 observations for photo	53254
created	177 observations for photo	53255
created	232 observations for photo	53256
created	244 observations for photo	53257
created	267 observations for photo	53258
created	269 observations for photo	53259
created	289 observations for photo	53260
created	298 observations for photo	53261
created	293 observations for photo	53262
created	296 observations for photo	53263
created	272 observations for photo	53264
created	285 observations for photo	53265
created	250 observations for photo	53266
created	254 observations for photo	53267
created	287 observations for photo	53268
created	254 observations for photo	53269

created	282 observations for photo	53270
created	229 observations for photo	53271
created	228 observations for photo	53272
created	212 observations for photo	53273
created	235 observations for photo	53274
created	207 observations for photo	53275
created	194 observations for photo	53276
created	218 observations for photo	53277
created	237 observations for photo	53278
created	244 observations for photo	53279
created	236 observations for photo	53280
created	241 observations for photo	53281
created	257 observations for photo	53282
created	220 observations for photo	53283
created	180 observations for photo	53284
created	159 observations for photo	53285
created	190 observations for photo	53286
created	176 observations for photo	53287
created	211 observations for photo	53288
created	202 observations for photo	53289
created	208 observations for photo	53290
created	215 observations for photo	53291
created	215 observations for photo	53292
created	215 observations for photo	53293
created	232 observations for photo	53294
created	232 observations for photo	53295
created	268 observations for photo	53296
created	257 observations for photo	53297
created	242 observations for photo	53298
created	241 observations for photo	53299
created	219 observations for photo	53300
created	204 observations for photo	53301
created	209 observations for photo	53302

created	207 observations for photo	53303
created	241 observations for photo	53304
created	230 observations for photo	53305
created	223 observations for photo	53306
created	225 observations for photo	53307
created	214 observations for photo	53308
created	279 observations for photo	53309
created	238 observations for photo	53310
created	239 observations for photo	53311
created	212 observations for photo	53312
created	230 observations for photo	53313
created	217 observations for photo	53314
created	241 observations for photo	53315
created	255 observations for photo	53316
created	240 observations for photo	53317
created	233 observations for photo	53318
created	232 observations for photo	53319
created	228 observations for photo	53320
created	242 observations for photo	53321
created	243 observations for photo	53322
created	232 observations for photo	53323
created	213 observations for photo	53324
created	174 observations for photo	53325
created	109 observations for photo	53326
created	176 observations for photo	53327
created	262 observations for photo	53328
created	239 observations for photo	53329
created	242 observations for photo	53330
created	183 observations for photo	53331
created	198 observations for photo	53332
created	205 observations for photo	53333
created	205 observations for photo	53334
created	223 observations for photo	53335

created	191 observations for photo	53336
created	245 observations for photo	53337
created	238 observations for photo	53338
created	225 observations for photo	53339
created	224 observations for photo	53340
created	261 observations for photo	53341
created	258 observations for photo	53342
created	211 observations for photo	53343
created	202 observations for photo	53344
created	236 observations for photo	53345
created	221 observations for photo	53346
created	226 observations for photo	53347
created	252 observations for photo	53348
created	174 observations for photo	53349
created	223 observations for photo	53350
created	227 observations for photo	53351
created	269 observations for photo	53352
created	247 observations for photo	53353
created	278 observations for photo	53354
created	267 observations for photo	53355
created	307 observations for photo	53356
created	278 observations for photo	53357
created	250 observations for photo	53358
created	248 observations for photo	53359
created	201 observations for photo	53360
created	226 observations for photo	53361
created	226 observations for photo	53362
created	275 observations for photo	53363
created	270 observations for photo	53364
created	284 observations for photo	53365
created	265 observations for photo	53366
created	267 observations for photo	53367
created	235 observations for photo	53368

created	206 observations for photo	53369
created	200 observations for photo	53370
created	191 observations for photo	53371
created	185 observations for photo	53372
created	214 observations for photo	53373
created	236 observations for photo	53374
created	228 observations for photo	53375
created	217 observations for photo	53376
created	201 observations for photo	53377
created	208 observations for photo	53378
created	220 observations for photo	53379
created	218 observations for photo	53380
created	223 observations for photo	53381
created	173 observations for photo	53382
created	206 observations for photo	53383
created	194 observations for photo	53384
created	211 observations for photo	53385
created	183 observations for photo	53386
created	207 observations for photo	53387
created	169 observations for photo	53388
created	146 observations for photo	53389
created	108 observations for photo	53390
created	77 observations for photo	53391
created	184 observations for photo	53392
created	201 observations for photo	53393
created	245 observations for photo	53394
created	254 observations for photo	53395
created	285 observations for photo	53396
created	323 observations for photo	53397
created	336 observations for photo	53398
created	310 observations for photo	53399
created	309 observations for photo	53400
created	292 observations for photo	53401

created	286 observations for photo	53402
created	278 observations for photo	53403
created	260 observations for photo	53404
created	228 observations for photo	53405
created	258 observations for photo	53406
created	266 observations for photo	53407
created	248 observations for photo	53408
created	309 observations for photo	53409
created	245 observations for photo	53410
created	246 observations for photo	53411
created	193 observations for photo	53412
created	215 observations for photo	53413
created	231 observations for photo	53414
created	262 observations for photo	53415
created	255 observations for photo	53416
created	217 observations for photo	53417
created	231 observations for photo	53418
created	232 observations for photo	53419
created	223 observations for photo	53420
created	201 observations for photo	53421
created	193 observations for photo	53422
created	204 observations for photo	53423
created	200 observations for photo	53424
created	187 observations for photo	53425
created	203 observations for photo	53426
created	212 observations for photo	53427
created	206 observations for photo	53428
created	189 observations for photo	53429
created	187 observations for photo	53430
created	202 observations for photo	53431
created	197 observations for photo	53432
created	203 observations for photo	53433
created	227 observations for photo	53434

created	235 observations for photo	53435
created	207 observations for photo	53436
created	188 observations for photo	53437
created	213 observations for photo	53438
created	224 observations for photo	53439
created	237 observations for photo	53440
created	229 observations for photo	53441
created	272 observations for photo	53442
created	283 observations for photo	53443
created	301 observations for photo	53444
created	229 observations for photo	53445
created	245 observations for photo	53446
created	242 observations for photo	53447
created	262 observations for photo	53448
created	278 observations for photo	53449
created	265 observations for photo	53450
created	272 observations for photo	53451
created	259 observations for photo	53452
created	254 observations for photo	53453
created	197 observations for photo	53454
created	202 observations for photo	53455
created	185 observations for photo	53456
created	164 observations for photo	53457
created	151 observations for photo	53458
created	160 observations for photo	53459
created	144 observations for photo	53460
created	167 observations for photo	53461
created	186 observations for photo	53462
created	164 observations for photo	53463
created	133 observations for photo	53464
created	78 observations for photo	53465
created	146 observations for photo	53466
created	185 observations for photo	53467

created	233 observations for photo	53468
created	226 observations for photo	53469
created	249 observations for photo	53470
created	205 observations for photo	53471
created	187 observations for photo	53472
created	176 observations for photo	53473
created	206 observations for photo	53474
created	175 observations for photo	53475
created	206 observations for photo	53476
created	181 observations for photo	53477
created	156 observations for photo	53478
created	169 observations for photo	53479
created	127 observations for photo	53480
created	163 observations for photo	53481
created	124 observations for photo	53482
created	160 observations for photo	53483
created	130 observations for photo	53484
created	118 observations for photo	53485
created	100 observations for photo	53486
created	102 observations for photo	53487
created	89 observations for photo	53488
created	91 observations for photo	53489
created	92 observations for photo	53490
created	123 observations for photo	53491
created	126 observations for photo	53492
created	165 observations for photo	53493
created	200 observations for photo	53494
created	190 observations for photo	53495
created	247 observations for photo	53496
created	249 observations for photo	53497
created	287 observations for photo	53498
created	312 observations for photo	53499
created	252 observations for photo	53500

created	250 observations for photo	53501
created	219 observations for photo	53502
created	263 observations for photo	53503
created	272 observations for photo	53504
created	259 observations for photo	53505
created	251 observations for photo	53506
created	263 observations for photo	53507
created	244 observations for photo	53508
created	268 observations for photo	53509
created	278 observations for photo	53510
created	277 observations for photo	53511
created	286 observations for photo	53512
created	235 observations for photo	53513
created	250 observations for photo	53514
created	294 observations for photo	53515
created	228 observations for photo	53516
created	271 observations for photo	53517
created	231 observations for photo	53518
created	262 observations for photo	53519
created	288 observations for photo	53520
created	288 observations for photo	53521
created	271 observations for photo	53522
created	238 observations for photo	53523
created	220 observations for photo	53524
created	246 observations for photo	53525
created	221 observations for photo	53526
created	252 observations for photo	53527
created	230 observations for photo	53528
created	281 observations for photo	53529
created	275 observations for photo	53530
created	297 observations for photo	53531
created	266 observations for photo	53532
created	265 observations for photo	53533

created	262 observations for photo	53534
created	273 observations for photo	53535
created	243 observations for photo	53536
created	243 observations for photo	53537
created	242 observations for photo	53538
created	207 observations for photo	53539
created	201 observations for photo	53540
created	201 observations for photo	53541
created	209 observations for photo	53542
created	182 observations for photo	53543
created	157 observations for photo	53544
created	134 observations for photo	53545
created	151 observations for photo	53546
created	180 observations for photo	53547
created	185 observations for photo	53548
created	177 observations for photo	53549
created	158 observations for photo	53550
created	130 observations for photo	53551
created	124 observations for photo	53552
created	166 observations for photo	53553
created	204 observations for photo	53554
created	238 observations for photo	53555
created	230 observations for photo	53556
created	229 observations for photo	53557
created	219 observations for photo	53558
created	234 observations for photo	53559
created	241 observations for photo	53560
created	231 observations for photo	53561
created	254 observations for photo	53562
created	278 observations for photo	53563
created	263 observations for photo	53564
created	233 observations for photo	53565
created	210 observations for photo	53566

created	177 observations for photo	53567
created	163 observations for photo	53568
created	180 observations for photo	53569
created	199 observations for photo	53570
created	215 observations for photo	53571
created	204 observations for photo	53572
created	192 observations for photo	53573
created	189 observations for photo	53574
created	171 observations for photo	53575
created	106 observations for photo	53576
created	63 observations for photo	53577
created	125 observations for photo	53578
created	163 observations for photo	53579
created	178 observations for photo	53580
created	157 observations for photo	53581
created	162 observations for photo	53582
created	138 observations for photo	53583
created	126 observations for photo	53584
created	134 observations for photo	53585
created	150 observations for photo	53586
created	146 observations for photo	53587
created	159 observations for photo	53588
created	153 observations for photo	53589
created	150 observations for photo	53590
created	143 observations for photo	53591
created	129 observations for photo	53592
created	114 observations for photo	53593
created	115 observations for photo	53594
created	146 observations for photo	53595
created	151 observations for photo	53596
created	146 observations for photo	53597
created	132 observations for photo	53598
created	138 observations for photo	53599

created	130 observations for photo	53600
created	142 observations for photo	53601
created	109 observations for photo	53602
created	119 observations for photo	53603
created	92 observations for photo	53604
created	101 observations for photo	53605
created	102 observations for photo	53606
created	125 observations for photo	53607
created	136 observations for photo	53608
created	143 observations for photo	53609
created	164 observations for photo	53610
created	201 observations for photo	53611
created	213 observations for photo	53612
created	226 observations for photo	53613
created	222 observations for photo	53614
created	239 observations for photo	53615
created	248 observations for photo	53616
created	152 observations for photo	53617
created	297 observations for photo	53618
created	279 observations for photo	53619
created	276 observations for photo	53620
created	252 observations for photo	53621
created	228 observations for photo	53622
created	233 observations for photo	53623
created	214 observations for photo	53624
created	233 observations for photo	53625
created	236 observations for photo	53626
created	238 observations for photo	53627
created	214 observations for photo	53628
created	250 observations for photo	53629
created	229 observations for photo	53630
created	219 observations for photo	53631
created	233 observations for photo	53632

created	234 observations for photo	53633
created	241 observations for photo	53634
created	275 observations for photo	53635
created	300 observations for photo	53636
created	259 observations for photo	53637
created	235 observations for photo	53638
created	203 observations for photo	53639
created	179 observations for photo	53640
created	112 observations for photo	53641
created	211 observations for photo	53642
created	275 observations for photo	53643
created	258 observations for photo	53644
created	245 observations for photo	53645
created	237 observations for photo	53646
created	220 observations for photo	53647
created	204 observations for photo	53648
created	175 observations for photo	53649
created	205 observations for photo	53650
created	229 observations for photo	53651
created	259 observations for photo	53652
created	260 observations for photo	53653
created	215 observations for photo	53654
created	177 observations for photo	53655
created	138 observations for photo	53656
created	139 observations for photo	53657
created	141 observations for photo	53658
created	168 observations for photo	53659
created	176 observations for photo	53660
created	161 observations for photo	53661
created	180 observations for photo	53662
created	174 observations for photo	53663
created	175 observations for photo	53664
created	173 observations for photo	53665

created	175 observations for photo	53666
created	185 observations for photo	53667
created	166 observations for photo	53668
created	184 observations for photo	53669
created	180 observations for photo	53670
created	191 observations for photo	53671
created	176 observations for photo	53672
created	184 observations for photo	53673
created	163 observations for photo	53674
created	125 observations for photo	53675
created	122 observations for photo	53676
created	99 observations for photo	53677
created	79 observations for photo	53678
created	88 observations for photo	54569
created	126 observations for photo	54570
created	183 observations for photo	54571
created	183 observations for photo	54572
created	256 observations for photo	54573
created	226 observations for photo	54574
created	279 observations for photo	54575
created	273 observations for photo	54576
created	271 observations for photo	54577
created	280 observations for photo	54578
created	239 observations for photo	54579
created	267 observations for photo	54580
created	285 observations for photo	54581
created	299 observations for photo	54582
created	311 observations for photo	54583
created	330 observations for photo	54584
created	347 observations for photo	54585
created	342 observations for photo	54586
created	329 observations for photo	54587
created	266 observations for photo	54588

created	243 observations for photo	54589
created	244 observations for photo	54590
created	264 observations for photo	54591
created	242 observations for photo	54592
created	236 observations for photo	54593
created	237 observations for photo	54594
created	184 observations for photo	54595
created	149 observations for photo	54596
created	158 observations for photo	54597
created	124 observations for photo	54598
created	172 observations for photo	54599
created	142 observations for photo	54600
created	150 observations for photo	54601
created	166 observations for photo	54602
created	153 observations for photo	54603
created	192 observations for photo	54604
created	186 observations for photo	54605
created	216 observations for photo	54606
created	178 observations for photo	54607
created	138 observations for photo	54608
created	162 observations for photo	54609
created	134 observations for photo	54610
created	132 observations for photo	54611
created	155 observations for photo	54612
created	157 observations for photo	54613
created	201 observations for photo	54614
created	197 observations for photo	54615
created	223 observations for photo	54616
created	212 observations for photo	54617
created	176 observations for photo	54618
created	137 observations for photo	54619
created	177 observations for photo	54620
created	223 observations for photo	54621

created	262 observations for photo	54622
created	231 observations for photo	54623
created	188 observations for photo	54624
created	214 observations for photo	54625
created	251 observations for photo	54626
created	206 observations for photo	54627
created	220 observations for photo	54628
created	227 observations for photo	54629
created	256 observations for photo	54630
created	227 observations for photo	54631
created	226 observations for photo	54632
created	215 observations for photo	54633
created	267 observations for photo	54634
created	249 observations for photo	54635
created	268 observations for photo	54636
created	235 observations for photo	54637
created	253 observations for photo	54638
created	218 observations for photo	54639
created	244 observations for photo	54640
created	231 observations for photo	54641
created	235 observations for photo	54642
created	232 observations for photo	54643
created	248 observations for photo	54644
created	202 observations for photo	54645
created	221 observations for photo	54646
created	207 observations for photo	54647
created	221 observations for photo	54648
created	186 observations for photo	54649
created	182 observations for photo	54650
created	171 observations for photo	54651
created	257 observations for photo	54652
created	264 observations for photo	54653
created	259 observations for photo	54654

created	241 observations for photo	54655
created	211 observations for photo	54656
created	214 observations for photo	54657
created	254 observations for photo	54658
created	245 observations for photo	54659
created	256 observations for photo	54660
created	239 observations for photo	54661
created	258 observations for photo	54662
created	263 observations for photo	54663
created	240 observations for photo	54664
created	210 observations for photo	54665
created	240 observations for photo	54666
created	270 observations for photo	54667
created	283 observations for photo	54668
created	241 observations for photo	54669
created	251 observations for photo	54670
created	246 observations for photo	54671
created	250 observations for photo	54672
created	269 observations for photo	54673
created	232 observations for photo	54674
created	262 observations for photo	54675
created	248 observations for photo	54676
created	255 observations for photo	54677
created	165 observations for photo	54678
created	62 observations for photo	54893
created	131 observations for photo	54894
created	126 observations for photo	54895
created	185 observations for photo	54896
created	199 observations for photo	54897
created	227 observations for photo	54898
created	206 observations for photo	54899
created	205 observations for photo	54900
created	194 observations for photo	54901

created	201 observations for photo	54902
created	209 observations for photo	54903
created	211 observations for photo	54904
created	196 observations for photo	54905
created	212 observations for photo	54906
created	167 observations for photo	54907
created	188 observations for photo	54908
created	198 observations for photo	54909
created	223 observations for photo	54910
created	225 observations for photo	54911
created	243 observations for photo	54912
created	209 observations for photo	54913
created	235 observations for photo	54914
created	197 observations for photo	54915
created	244 observations for photo	54916
created	197 observations for photo	54917
created	233 observations for photo	54918
created	241 observations for photo	54919
created	260 observations for photo	54920
created	241 observations for photo	54921
created	251 observations for photo	54922
created	287 observations for photo	54923
created	298 observations for photo	54924
created	318 observations for photo	54925
created	324 observations for photo	54926
created	317 observations for photo	54927
created	287 observations for photo	54928
created	238 observations for photo	54929
created	242 observations for photo	54930
created	244 observations for photo	54931
created	219 observations for photo	54932
created	160 observations for photo	54933
created	138 observations for photo	54934

created	180 observations for photo	54935
created	212 observations for photo	54936
created	198 observations for photo	54679
created	229 observations for photo	54680
created	246 observations for photo	54681
created	248 observations for photo	54682
created	242 observations for photo	54683
created	254 observations for photo	54684
created	243 observations for photo	54685
created	216 observations for photo	54686
created	272 observations for photo	54687
created	302 observations for photo	54688
created	313 observations for photo	54689
created	342 observations for photo	54690
created	365 observations for photo	54691
created	325 observations for photo	54692
created	310 observations for photo	54693
created	280 observations for photo	54694
created	249 observations for photo	54695
created	232 observations for photo	54696
created	279 observations for photo	54697
created	295 observations for photo	54698
created	287 observations for photo	54699
created	310 observations for photo	54700
created	275 observations for photo	54701
created	242 observations for photo	54702
created	198 observations for photo	54703
created	221 observations for photo	54704
created	243 observations for photo	54705
created	270 observations for photo	54706
created	254 observations for photo	54707
created	222 observations for photo	54708
created	223 observations for photo	54709

created	251 observations for photo	54710
created	246 observations for photo	54711
created	227 observations for photo	54712
created	191 observations for photo	54713
created	188 observations for photo	54714
created	182 observations for photo	54715
created	194 observations for photo	54716
created	181 observations for photo	54717
created	180 observations for photo	54718
created	159 observations for photo	54719
created	196 observations for photo	54720
created	223 observations for photo	54721
created	196 observations for photo	54722
created	189 observations for photo	54723
created	219 observations for photo	54724
created	259 observations for photo	54725
created	294 observations for photo	54726
created	295 observations for photo	54727
created	303 observations for photo	54728
created	217 observations for photo	54729
created	190 observations for photo	54730
created	176 observations for photo	54731
created	190 observations for photo	54732
created	236 observations for photo	54937
created	244 observations for photo	54938
created	206 observations for photo	54939
created	218 observations for photo	54940
created	211 observations for photo	54941
created	197 observations for photo	54942
created	182 observations for photo	54943
created	150 observations for photo	54944
created	141 observations for photo	54945
created	182 observations for photo	54946

created	196 observations for photo	54947
created	223 observations for photo	54948
created	236 observations for photo	54949
created	266 observations for photo	54950
created	305 observations for photo	54951
created	294 observations for photo	54952
created	265 observations for photo	54953
created	230 observations for photo	54954
created	230 observations for photo	54955
created	229 observations for photo	54956
created	249 observations for photo	54957
created	239 observations for photo	54958
created	247 observations for photo	54959
created	247 observations for photo	54960
created	242 observations for photo	54961
created	198 observations for photo	54962
created	209 observations for photo	54963
created	242 observations for photo	54964
created	237 observations for photo	54965
created	233 observations for photo	54966
created	232 observations for photo	54967
created	181 observations for photo	54968
created	185 observations for photo	54969
created	205 observations for photo	54970
created	214 observations for photo	54971
created	242 observations for photo	54972
created	251 observations for photo	54973
created	261 observations for photo	54974
created	235 observations for photo	54975
created	243 observations for photo	54976
created	247 observations for photo	54977
created	280 observations for photo	54978
created	220 observations for photo	54979

created	218 observations for photo	54980
created	145 observations for photo	54981
created	228 observations for photo	54733
created	205 observations for photo	54734
created	191 observations for photo	54735
created	163 observations for photo	54736
created	198 observations for photo	54737
created	203 observations for photo	54738
created	218 observations for photo	54739
created	249 observations for photo	54740
created	260 observations for photo	54741
created	227 observations for photo	54742
created	232 observations for photo	54743
created	258 observations for photo	54744
created	250 observations for photo	54745
created	226 observations for photo	54746
created	217 observations for photo	54747
created	229 observations for photo	54748
created	216 observations for photo	54749
created	234 observations for photo	54750
created	238 observations for photo	54751
created	231 observations for photo	54752
created	261 observations for photo	54753
created	264 observations for photo	54754
created	230 observations for photo	54755
created	239 observations for photo	54756
created	224 observations for photo	54757
created	211 observations for photo	54758
created	216 observations for photo	54759
created	225 observations for photo	54760
created	236 observations for photo	54761
created	236 observations for photo	54762
created	239 observations for photo	54763

created	212 observations for photo	54764
created	205 observations for photo	54765
created	214 observations for photo	54766
created	263 observations for photo	54767
created	247 observations for photo	54768
created	257 observations for photo	54769
created	292 observations for photo	54770
created	251 observations for photo	54771
created	210 observations for photo	54772
created	243 observations for photo	54773
created	270 observations for photo	54774
created	296 observations for photo	54775
created	292 observations for photo	54776
created	262 observations for photo	54777
created	258 observations for photo	54778
created	228 observations for photo	54779
created	271 observations for photo	54780
created	255 observations for photo	54781
created	264 observations for photo	54782
created	246 observations for photo	54783
created	206 observations for photo	54784
created	130 observations for photo	54785
created	120 observations for photo	54982
created	180 observations for photo	54983
created	178 observations for photo	54984
created	173 observations for photo	54985
created	150 observations for photo	54986
created	173 observations for photo	54987
created	206 observations for photo	54988
created	243 observations for photo	54989
created	259 observations for photo	54990
created	241 observations for photo	54991
created	247 observations for photo	54992

created	239 observations for photo	54993
created	249 observations for photo	54994
created	225 observations for photo	54995
created	227 observations for photo	54996
created	234 observations for photo	54997
created	335 observations for photo	54998
created	375 observations for photo	54999
created	231 observations for photo	55000
created	238 observations for photo	55001
created	123 observations for photo	55002
created	48 observations for photo	55003
created	4 observations for photo	55004
created	133 observations for photo	54786
created	195 observations for photo	54787
created	227 observations for photo	54788
created	241 observations for photo	54789
created	235 observations for photo	54790
created	267 observations for photo	54791
created	255 observations for photo	54792
created	237 observations for photo	54793
created	232 observations for photo	54794
created	233 observations for photo	54795
created	247 observations for photo	54796
created	259 observations for photo	54797
created	275 observations for photo	54798
created	260 observations for photo	54799
created	248 observations for photo	54800
created	256 observations for photo	54801
created	237 observations for photo	54802
created	287 observations for photo	54803
created	272 observations for photo	54804
created	268 observations for photo	54805
created	270 observations for photo	54806

created	250 observations for photo	54807
created	258 observations for photo	54808
created	282 observations for photo	54809
created	235 observations for photo	54810
created	244 observations for photo	54811
created	239 observations for photo	54812
created	257 observations for photo	54813
created	230 observations for photo	54814
created	281 observations for photo	54815
created	250 observations for photo	54816
created	283 observations for photo	54817
created	285 observations for photo	54818
created	226 observations for photo	54819
created	194 observations for photo	54820
created	164 observations for photo	54821
created	179 observations for photo	54822
created	201 observations for photo	54823
created	181 observations for photo	54824
created	185 observations for photo	54825
created	179 observations for photo	54826
created	207 observations for photo	54827
created	188 observations for photo	54828
created	196 observations for photo	54829
created	194 observations for photo	54830
created	280 observations for photo	54831
created	358 observations for photo	54832
created	421 observations for photo	54833
created	301 observations for photo	54834
created	376 observations for photo	54835
created	307 observations for photo	54836
created	270 observations for photo	54837
created	228 observations for photo	54838
created	235 observations for photo	54839

created	211 observations for photo	54840
created	263 observations for photo	54841
created	236 observations for photo	55005
created	224 observations for photo	55006
created	198 observations for photo	55007
created	233 observations for photo	55008
created	259 observations for photo	55009
created	294 observations for photo	55010
created	266 observations for photo	55011
created	258 observations for photo	55012
created	237 observations for photo	55013
created	223 observations for photo	55014
created	214 observations for photo	55015
created	256 observations for photo	55016
created	223 observations for photo	55017
created	218 observations for photo	55018
created	151 observations for photo	55019
created	149 observations for photo	55020
created	154 observations for photo	55021
created	193 observations for photo	55022
created	189 observations for photo	55023
created	172 observations for photo	55024
created	207 observations for photo	55025
created	183 observations for photo	55026
created	198 observations for photo	55027
created	169 observations for photo	55028
created	187 observations for photo	55029
created	195 observations for photo	55030
created	179 observations for photo	55031
created	177 observations for photo	55032
created	137 observations for photo	55033
created	111 observations for photo	55034
created	61 observations for photo	55035

created	252 observations for photo	54842
created	239 observations for photo	54843
created	206 observations for photo	54844
created	180 observations for photo	54845
created	181 observations for photo	54846
created	204 observations for photo	54847
created	210 observations for photo	54848
created	211 observations for photo	54849
created	200 observations for photo	54850
created	205 observations for photo	54851
created	245 observations for photo	54852
created	225 observations for photo	54853
created	218 observations for photo	54854
created	227 observations for photo	54855
created	227 observations for photo	54856
created	224 observations for photo	54857
created	210 observations for photo	54858
created	226 observations for photo	54859
created	230 observations for photo	54860
created	231 observations for photo	54861
created	233 observations for photo	54862
created	271 observations for photo	54863
created	262 observations for photo	54864
created	288 observations for photo	54865
created	257 observations for photo	54866
created	255 observations for photo	54867
created	247 observations for photo	54868
created	230 observations for photo	54869
created	243 observations for photo	54870
created	205 observations for photo	54871
created	187 observations for photo	54872
created	117 observations for photo	54873
created	94 observations for photo	54874

created	186 observations for photo	54875
created	254 observations for photo	54876
created	244 observations for photo	54877
created	240 observations for photo	54878
created	241 observations for photo	54879
created	244 observations for photo	54880
created	260 observations for photo	54881
created	288 observations for photo	54882
created	272 observations for photo	54883
created	268 observations for photo	54884
created	278 observations for photo	54885
created	263 observations for photo	54886
created	224 observations for photo	54887
created	181 observations for photo	54888
created	200 observations for photo	54889
created	191 observations for photo	54890
created	166 observations for photo	54891
created	137 observations for photo	54892
created	52 observations for photo	55036
created	127 observations for photo	55037
created	141 observations for photo	55038
created	153 observations for photo	55039
created	133 observations for photo	55040
created	170 observations for photo	55041
created	189 observations for photo	55042
created	188 observations for photo	55043
created	186 observations for photo	55044
created	210 observations for photo	55045
created	220 observations for photo	55046
created	212 observations for photo	55047
created	214 observations for photo	55048
created	238 observations for photo	55049
created	252 observations for photo	55050

created	282 observations for photo	55051
created	271 observations for photo	55052
created	227 observations for photo	55053
created	233 observations for photo	55054
created	265 observations for photo	55055
created	272 observations for photo	55056
created	279 observations for photo	55057
created	294 observations for photo	55058
created	251 observations for photo	55059
created	235 observations for photo	55060
created	200 observations for photo	55061
created	237 observations for photo	55062
created	212 observations for photo	55063
created	216 observations for photo	55064
created	180 observations for photo	55065
created	210 observations for photo	55066
created	225 observations for photo	55067
created	232 observations for photo	55068
created	229 observations for photo	55069
created	250 observations for photo	55070
created	256 observations for photo	55071
created	255 observations for photo	55072
created	276 observations for photo	55073
created	292 observations for photo	55074
created	243 observations for photo	55075
created	198 observations for photo	55076
created	165 observations for photo	55077
created	161 observations for photo	55078
created	161 observations for photo	55079
created	173 observations for photo	55080
created	198 observations for photo	55081
created	223 observations for photo	55082
created	218 observations for photo	55083

created	208 observations for photo	55084
created	222 observations for photo	55085
created	216 observations for photo	55086
created	257 observations for photo	55087
created	262 observations for photo	55088
created	246 observations for photo	55089
created	226 observations for photo	55090
created	250 observations for photo	55091
created	212 observations for photo	55092
created	223 observations for photo	55093
created	170 observations for photo	55094
created	172 observations for photo	55095
created	128 observations for photo	55096
created	90 observations for photo	55097

total of 255887 measurements in 1155 photos are used for adjustment (total 1155 photos)

sigma naught	0.7 micron (10:09:41)
sigma naught	0.7 micron (10:09:57)

found	4157 points connecting	2 photos
found	11053 points connecting	3 photos
found	8045 points connecting	4 photos
found	4326 points connecting	5 photos
found	8850 points connecting	6 photos
found	8405 points connecting	7 photos
found	3385 points connecting	8 photos
found	941 points connecting	9 photos
found	729 points connecting	10 photos

found 278 points connecting 11 photos
found 133 points connecting 12 photos
found 58 points connecting 13 photos
found 28 points connecting 14 photos
found 2 points connecting 15 photos

number of observations 515587
number of unknowns 158294
redundancy 357293

additional selfcalibration parameters - camera 1

parameter number	value	standardized residual	lower bound of determinability
1	-0.5	-59.1	0.0
2	-0.9	-110.6	0.0
3	-0.1	-13.1	0.0
4	0.2	23.6	0.0
5	-0.2	-30.2	0.0
6	-0.1	-6.0	0.0
7	0.4	59.7	0.0
8	-1.2	-154.4	0.0
9	0.8	89.8	0.0
10	0.0	2.6	0.0
11	0.0	2.5	0.0
12	-0.1	-13.3	0.0
13	-1.2	-133.2	0.0
14	0.4	84.7	0.0
15	0.0	4.0	0.0

16	-0.3	-40.6	0.0
17	0.0	2.5	0.0
18	-0.1	-24.2	0.0
19	-0.0	-2.9	0.0
20	0.0	6.8	0.0
21	0.0	5.7	0.0
22	-0.2	-17.8	0.0
23	-0.0	-2.5	0.0
24	-0.0	-6.3	0.0
25	0.1	9.3	0.0
26	0.6	74.2	0.0
27	0.0	6.2	0.0
28	0.3	44.0	0.0
29	0.4	55.2	0.0
30	0.0	4.4	0.0
31	0.2	33.9	0.0
32	0.0	2.1	0.0
33	-0.1	-9.3	0.0
34	0.0	9.8	0.0
35	-0.0	-6.4	0.0
36	0.0	2.4	0.0
37	-0.0	-7.4	0.0
38	0.0	1.8	0.0
39	0.0	1.6	0.0
40	0.1	18.6	0.0
41	0.2	40.5	0.0
42	0.0	0.5	0.0
43	-0.0	-5.6	0.0
44	-0.0	-1.0	0.0

corrections on 25 grid points in micron

-2.34	0.70	0.70	-0.49	-0.88
2.04	1.55	1.45	-0.49	-1.61
-0.12	0.14	0.27	-0.43	-1.84
-0.63	0.04	0.24	-0.12	-0.66
0.78	0.18	-0.10	-0.56	-1.15
-0.70	-0.38	-0.03	0.23	0.44
1.78	0.63	-0.40	-0.86	0.10
0.38	0.08	0.08	0.18	0.26
0.71	1.18	-0.55	-0.76	3.31
0.85	0.85	-0.44	-0.96	-2.65

RMS automatic points in photo (number: 255033)

x	0.6 micron
y	0.6 micron

RMS control and manual points in photo (number: 854)

x	1.1 micron
y	1.1 micron

RMS control points with default standard deviation set (number: 116)

x	0.020 [meter]
y	0.019 [meter]

RMS control points with default standard deviation set (number: 116)

z 0.044 [meter]

RMS GNSS observations (number: 1155)

x 0.040 [meter]

y 0.042 [meter]

z 0.037 [meter]

sigma naught 0.7 micron (10:10:19)

standard deviations of exterior orientation parameters (px, py, pz in [meter] omega,phi,kappa in [deg/1000])

photo ID	px	py	pz	omega	phi	kappa
53050	0.107	0.062	0.077	1.43234	2.68907	0.90128
53051	0.102	0.055	0.073	1.27817	2.60561	0.69732
53052	0.098	0.051	0.071	1.18037	2.50441	0.63816
53053	0.095	0.046	0.069	1.06095	2.43933	0.52154
53054	0.095	0.047	0.069	1.09916	2.43457	0.51155
53055	0.091	0.044	0.069	1.03946	2.34789	0.47025
53056	0.090	0.042	0.069	0.98093	2.30195	0.44663
53057	0.090	0.043	0.071	1.01504	2.29454	0.43619
53058	0.091	0.044	0.073	1.04394	2.32221	0.45062
53059	0.091	0.043	0.075	0.99452	2.31619	0.45189
53060	0.094	0.046	0.077	1.07553	2.37730	0.48841
53061	0.096	0.047	0.080	1.06841	2.42305	0.51516
53062	0.099	0.049	0.084	1.11882	2.48448	0.53060
53063	0.102	0.052	0.087	1.21652	2.54655	0.58410
53064	0.106	0.057	0.092	1.33500	2.60132	0.71126
53065	0.068	0.039	0.032	0.96526	1.68284	0.49239
53066	0.062	0.033	0.030	0.80440	1.56394	0.36478
53067	0.061	0.032	0.029	0.77188	1.53047	0.29864
53068	0.058	0.029	0.028	0.69730	1.46766	0.25806
53069	0.055	0.027	0.027	0.65644	1.40055	0.22888
53070	0.053	0.028	0.026	0.67489	1.33537	0.21910

53071	0.052	0.029	0.026	0.69829	1.32329	0.21317
53072	0.050	0.029	0.026	0.70363	1.26871	0.21191
53073	0.048	0.028	0.026	0.66986	1.22231	0.20115
53074	0.048	0.030	0.026	0.72839	1.22169	0.20903
53075	0.047	0.029	0.026	0.71178	1.18103	0.20074
53076	0.046	0.027	0.026	0.66187	1.15797	0.19418
53077	0.047	0.028	0.026	0.67142	1.17227	0.19774
53078	0.048	0.030	0.026	0.74849	1.19846	0.21200
53079	0.047	0.029	0.027	0.69243	1.19299	0.21243
53080	0.050	0.032	0.028	0.77017	1.25590	0.23992
53081	0.053	0.034	0.029	0.84174	1.32234	0.27693
53082	0.054	0.035	0.031	0.84290	1.32277	0.32401
53083	0.062	0.041	0.034	0.99964	1.54383	0.49186
53084	0.065	0.044	0.036	1.09011	1.58508	0.59281
53085	0.080	0.051	0.048	1.23990	1.92284	0.75267
53086	0.074	0.045	0.044	1.09215	1.82177	0.55159
53087	0.070	0.042	0.041	1.01795	1.74787	0.44758
53088	0.068	0.040	0.039	0.95318	1.70245	0.35703
53089	0.066	0.036	0.038	0.87336	1.65131	0.30864
53090	0.064	0.035	0.037	0.83861	1.61406	0.27946
53091	0.063	0.035	0.037	0.84777	1.60047	0.27270
53092	0.063	0.034	0.038	0.81652	1.58828	0.26029
53093	0.064	0.035	0.039	0.85144	1.61574	0.26495
53094	0.064	0.035	0.040	0.83687	1.61746	0.26111
53095	0.066	0.035	0.041	0.85711	1.65554	0.27697
53096	0.067	0.034	0.042	0.82171	1.69621	0.27229
53097	0.070	0.035	0.044	0.83128	1.75847	0.28652
53098	0.072	0.035	0.046	0.85324	1.81692	0.30508
53099	0.075	0.036	0.049	0.85113	1.88784	0.33732
53100	0.077	0.039	0.051	0.92550	1.94449	0.38897
53101	0.084	0.042	0.054	1.01839	2.09787	0.49785
53102	0.087	0.047	0.058	1.14994	2.16707	0.63350
53103	0.036	0.039	0.028	1.28138	1.38037	1.25588
53104	0.035	0.037	0.025	1.23534	1.33510	0.98576
53105	0.033	0.034	0.023	1.15139	1.20164	0.72079
53106	0.029	0.030	0.021	1.09505	0.96826	0.58854
53107	0.029	0.028	0.020	1.04773	0.95969	0.48573
53108	0.026	0.024	0.019	0.91858	0.86356	0.39927
53109	0.027	0.024	0.018	0.94241	0.86547	0.37086

53110	0.028	0.026	0.017	0.86820	1.03103	0.36264
53111	0.028	0.026	0.017	0.91058	0.94930	0.36202
53112	0.028	0.025	0.016	0.85549	0.97149	0.35016
53113	0.026	0.025	0.015	0.89907	0.88035	0.32330
53114	0.025	0.022	0.015	0.85166	0.79701	0.28796
53115	0.027	0.024	0.014	0.87258	0.87225	0.32326
53116	0.027	0.023	0.014	0.81724	0.94288	0.29347
53117	0.028	0.025	0.014	0.86752	0.98857	0.32531
53118	0.026	0.023	0.013	0.86262	0.87388	0.32516
53119	0.027	0.024	0.013	0.90418	0.85118	0.33274
53120	0.028	0.025	0.014	0.94083	0.92257	0.34749
53121	0.028	0.025	0.013	0.98740	0.82540	0.34445
53122	0.028	0.025	0.013	0.92707	0.91420	0.33895
53123	0.027	0.024	0.014	0.86597	0.91541	0.33105
53124	0.028	0.024	0.014	0.90668	0.90395	0.34170
53125	0.030	0.027	0.015	0.90597	1.05613	0.39903
53126	0.030	0.028	0.015	1.07092	0.91412	0.38659
53127	0.030	0.029	0.016	0.98062	1.05315	0.42272
53129	0.032	0.029	0.017	1.13683	0.97817	0.42918
53130	0.033	0.030	0.018	1.07055	1.17037	0.45968
53131	0.031	0.029	0.018	1.15837	0.91589	0.42682
53132	0.030	0.029	0.018	1.12002	0.93977	0.40023
53133	0.029	0.029	0.019	1.06139	0.97485	0.42162
53134	0.032	0.032	0.020	1.07333	1.14180	0.49513
53135	0.030	0.030	0.021	0.98953	1.12395	0.49741
53136	0.032	0.032	0.023	1.05215	1.17497	0.62973
53137	0.035	0.036	0.025	1.23137	1.27998	0.91181
53138	0.040	0.041	0.029	1.41034	1.43380	1.39439
53141	0.033	0.046	0.028	1.30895	1.34873	0.86486
53142	0.029	0.043	0.027	1.22289	1.21572	0.61974
53143	0.029	0.042	0.026	1.17235	1.20338	0.47326
53144	0.025	0.040	0.025	1.07324	1.12673	0.38252
53145	0.025	0.040	0.025	1.11276	1.09547	0.35733
53146	0.025	0.040	0.024	1.13348	1.12895	0.36271
53147	0.025	0.039	0.023	1.12411	1.09491	0.36330
53148	0.026	0.039	0.023	1.13645	1.10490	0.36503
53149	0.026	0.039	0.022	1.15622	1.10275	0.37198
53150	0.026	0.037	0.022	1.13434	1.05718	0.36732
53151	0.026	0.037	0.021	1.06945	1.13219	0.37182

53152	0.026	0.036	0.021	1.07841	1.10773	0.36189
53153	0.025	0.036	0.020	1.04852	1.09436	0.35282
53154	0.024	0.035	0.020	1.05028	1.06893	0.35311
53155	0.026	0.035	0.019	1.11120	1.04553	0.35899
53156	0.026	0.035	0.019	1.06639	1.09329	0.37066
53157	0.026	0.034	0.019	1.08904	1.03393	0.35449
53158	0.026	0.035	0.018	1.05208	1.09601	0.35460
53159	0.027	0.033	0.018	1.07784	1.04363	0.33821
53160	0.026	0.032	0.017	1.00765	1.03057	0.31775
53161	0.024	0.031	0.016	0.95951	0.98967	0.30676
53162	0.027	0.033	0.016	1.01590	1.05763	0.32103
53163	0.027	0.032	0.016	1.01019	1.05508	0.32651
53164	0.025	0.031	0.016	1.01415	0.95064	0.30887
53165	0.026	0.032	0.016	1.02864	1.02861	0.33143
53166	0.027	0.031	0.015	1.01692	1.00959	0.32718
53167	0.025	0.031	0.015	0.99308	0.99299	0.33196
53168	0.026	0.031	0.015	1.03097	0.99405	0.33276
53169	0.027	0.031	0.015	0.98875	1.06462	0.34274
53170	0.025	0.029	0.014	1.00833	0.91195	0.31827
53171	0.027	0.030	0.014	1.02976	0.97835	0.33950
53172	0.027	0.031	0.014	1.03666	1.00366	0.34331
53173	0.028	0.031	0.014	1.04764	1.02600	0.34778
53174	0.026	0.031	0.014	1.02528	0.99075	0.32536
53175	0.026	0.031	0.014	1.00080	0.99462	0.32812
53176	0.026	0.031	0.014	1.02310	0.99036	0.31368
53177	0.025	0.031	0.014	1.03126	0.96982	0.30511
53178	0.025	0.031	0.014	1.07520	0.92314	0.29865
53179	0.025	0.030	0.015	1.00530	0.97025	0.29773
53180	0.028	0.033	0.016	1.08694	1.10369	0.35089
53181	0.026	0.032	0.016	0.99749	1.08312	0.32715
53182	0.026	0.033	0.016	1.04974	1.06300	0.34452
53183	0.027	0.033	0.017	1.07184	1.05797	0.35284
53184	0.029	0.035	0.017	1.21714	1.05040	0.38918
53185	0.029	0.034	0.017	1.19095	1.02121	0.35221
53186	0.030	0.036	0.018	1.15705	1.17820	0.41790
53187	0.029	0.035	0.018	1.09130	1.14551	0.36463
53188	0.028	0.036	0.019	1.10600	1.16660	0.38902
53189	0.027	0.036	0.019	1.10681	1.13587	0.35957
53190	0.026	0.036	0.019	1.13472	1.06898	0.32837

53191	0.026	0.037	0.020	1.13426	1.07471	0.32014
53192	0.025	0.037	0.020	1.14720	1.05852	0.32563
53193	0.027	0.039	0.021	1.21169	1.13659	0.36556
53194	0.026	0.039	0.021	1.20208	1.10027	0.34976
53195	0.026	0.039	0.022	1.14736	1.14305	0.35084
53196	0.026	0.039	0.022	1.17685	1.16492	0.34853
53197	0.028	0.040	0.023	1.23894	1.19977	0.38037
53198	0.027	0.040	0.024	1.24328	1.15619	0.38712
53199	0.028	0.042	0.025	1.29391	1.23513	0.43480
53200	0.028	0.042	0.025	1.31781	1.20111	0.43416
53201	0.030	0.043	0.026	1.31903	1.33384	0.49759
53202	0.030	0.044	0.027	1.33794	1.35213	0.57365
53203	0.029	0.046	0.028	1.32923	1.39519	0.68032
53204	0.031	0.048	0.029	1.40219	1.46055	0.88883
53205	0.034	0.050	0.031	1.53747	1.58169	1.23801
53206	0.038	0.049	0.040	1.58341	1.73605	1.68816
53207	0.034	0.047	0.037	1.47988	1.56824	1.37010
53208	0.035	0.047	0.036	1.50626	1.54856	1.25697
53209	0.033	0.045	0.035	1.40194	1.50062	1.20274
53210	0.033	0.045	0.034	1.59448	1.36418	1.22442
53211	0.033	0.044	0.032	1.43121	1.40704	1.10170
53212	0.032	0.043	0.031	1.34560	1.38946	1.00995
53213	0.033	0.042	0.030	1.32616	1.33049	1.04792
53214	0.031	0.040	0.029	1.26259	1.25095	0.86023
53215	0.030	0.039	0.028	1.20193	1.20892	0.78347
53216	0.030	0.038	0.027	1.20624	1.16661	0.74750
53217	0.028	0.036	0.026	1.12616	1.18340	0.70459
53218	0.031	0.036	0.025	1.11408	1.27972	0.63539
53219	0.027	0.033	0.023	1.03297	1.05270	0.51901
53220	0.027	0.032	0.022	0.97295	1.03404	0.46040
53221	0.027	0.031	0.022	0.96845	0.99743	0.40409
53222	0.026	0.029	0.021	0.91262	0.99239	0.37950
53223	0.026	0.027	0.020	0.99457	0.85024	0.35752
53224	0.026	0.028	0.019	0.99927	0.80609	0.32965
53225	0.026	0.026	0.018	0.86057	0.90781	0.32286
53226	0.026	0.027	0.018	0.89854	0.89768	0.31066
53227	0.027	0.027	0.017	0.89986	0.94137	0.32510
53228	0.026	0.028	0.017	0.97571	0.84642	0.33791
53229	0.029	0.027	0.017	1.00756	0.92025	0.36144

53230	0.030	0.028	0.017	1.12009	0.92361	0.41178
53231	0.026	0.024	0.015	0.91840	0.86144	0.33271
53232	0.027	0.024	0.015	0.94105	0.85483	0.32289
53233	0.028	0.023	0.014	0.91809	0.87813	0.31646
53234	0.026	0.023	0.014	0.94040	0.80306	0.30239
53235	0.026	0.024	0.014	0.88982	0.88209	0.32246
53236	0.028	0.024	0.014	1.02107	0.81579	0.34131
53237	0.028	0.024	0.014	1.00067	0.83658	0.34360
53238	0.029	0.025	0.014	0.94268	0.93963	0.35749
53239	0.028	0.025	0.014	0.98502	0.88433	0.36220
53240	0.027	0.025	0.014	0.88670	0.92233	0.32846
53241	0.029	0.027	0.014	0.97451	0.95289	0.37486
53242	0.029	0.026	0.015	0.97465	0.95839	0.35789
53243	0.027	0.026	0.015	0.98700	0.88810	0.34191
53244	0.028	0.027	0.015	0.90126	1.03253	0.35868
53245	0.029	0.028	0.016	0.96532	1.00000	0.36648
53246	0.028	0.027	0.016	0.91094	0.96216	0.35149
53247	0.029	0.028	0.017	1.03912	0.93555	0.37522
53248	0.031	0.029	0.018	1.04753	1.04061	0.42102
53249	0.032	0.030	0.019	1.19720	0.95527	0.44687
53250	0.033	0.034	0.021	1.25000	1.07470	0.54795
53251	0.033	0.034	0.021	1.27125	1.06407	0.54398
53252	0.034	0.034	0.022	1.13677	1.25750	0.58075
53253	0.033	0.035	0.023	1.10850	1.24661	0.62798
53254	0.034	0.035	0.024	1.08597	1.30742	0.76344
53255	0.033	0.046	0.027	1.34785	1.49027	1.03947
53256	0.029	0.044	0.026	1.36960	1.28741	0.79039
53257	0.030	0.043	0.024	1.30835	1.33672	0.62132
53258	0.026	0.041	0.023	1.19086	1.24854	0.48005
53259	0.028	0.043	0.023	1.22365	1.29284	0.42637
53260	0.026	0.040	0.022	1.15485	1.19015	0.36906
53261	0.025	0.038	0.021	1.06998	1.13210	0.32801
53262	0.026	0.038	0.021	1.07412	1.17001	0.31843
53263	0.024	0.036	0.021	1.03477	1.07702	0.30782
53264	0.025	0.036	0.020	1.07236	1.08379	0.32112
53265	0.024	0.035	0.020	1.08694	1.02960	0.30440
53266	0.026	0.035	0.020	1.10207	1.08543	0.32981
53267	0.026	0.036	0.019	1.13350	1.07301	0.32721
53268	0.025	0.034	0.018	1.06719	1.01114	0.30405

53269	0.028	0.036	0.019	1.13682	1.15565	0.35644
53270	0.025	0.034	0.018	1.05345	1.06452	0.32520
53271	0.026	0.034	0.018	1.09924	1.03544	0.34745
53272	0.026	0.034	0.018	1.09603	1.02829	0.33179
53273	0.026	0.034	0.017	1.11145	1.02378	0.34585
53274	0.026	0.033	0.017	1.03895	1.07494	0.33037
53275	0.027	0.034	0.017	1.09602	1.06870	0.35515
53276	0.027	0.035	0.017	1.12675	1.07604	0.36713
53277	0.027	0.034	0.016	1.12125	1.06022	0.35090
53278	0.026	0.034	0.016	1.01521	1.14088	0.35224
53279	0.026	0.033	0.016	1.02230	1.10948	0.34570
53280	0.024	0.031	0.016	0.99621	0.99749	0.33094
53281	0.027	0.032	0.015	1.09159	0.99863	0.33759
53282	0.027	0.032	0.015	1.05863	1.03142	0.34156
53283	0.027	0.031	0.015	1.04867	1.03740	0.36013
53284	0.029	0.032	0.015	1.05902	1.12085	0.39200
53285	0.028	0.032	0.015	1.06466	1.07562	0.39716
53286	0.028	0.033	0.015	1.09578	1.07284	0.39101
53287	0.030	0.034	0.016	1.14368	1.17287	0.42275
53288	0.026	0.032	0.015	1.05017	1.02609	0.35586
53289	0.028	0.032	0.015	1.08280	1.03442	0.36949
53290	0.028	0.032	0.015	1.02822	1.07558	0.36244
53291	0.027	0.031	0.015	1.01266	1.03094	0.34237
53292	0.026	0.031	0.015	1.03080	0.96385	0.32482
53293	0.027	0.032	0.015	1.08017	0.95681	0.33279
53294	0.026	0.031	0.015	1.03813	0.98953	0.33089
53295	0.026	0.031	0.015	1.05469	1.01622	0.34367
53296	0.025	0.031	0.015	1.01861	0.98475	0.31570
53297	0.025	0.031	0.015	1.05969	0.96720	0.32178
53298	0.026	0.032	0.016	1.03820	1.03906	0.32554
53299	0.026	0.032	0.016	1.04673	1.04354	0.32612
53300	0.026	0.032	0.016	1.01523	1.06489	0.33264
53301	0.027	0.034	0.017	1.06125	1.12200	0.35045
53302	0.027	0.033	0.017	1.08289	1.08362	0.34575
53303	0.028	0.035	0.018	1.09990	1.13341	0.37701
53304	0.027	0.035	0.018	1.12763	1.08566	0.35230
53305	0.027	0.035	0.018	1.16185	1.06771	0.36633
53306	0.027	0.036	0.018	1.15751	1.07008	0.37504
53307	0.027	0.035	0.018	1.10043	1.07290	0.33290

53308	0.028	0.037	0.019	1.11180	1.12818	0.35128
53309	0.026	0.035	0.019	1.05913	1.07805	0.30537
53310	0.026	0.037	0.020	1.15435	1.09897	0.34332
53311	0.027	0.038	0.020	1.15803	1.16258	0.36052
53312	0.027	0.039	0.021	1.16350	1.17304	0.37560
53313	0.025	0.038	0.021	1.16315	1.10590	0.35531
53314	0.028	0.040	0.022	1.24916	1.17224	0.39089
53315	0.028	0.040	0.022	1.26462	1.21085	0.39707
53316	0.025	0.040	0.023	1.21386	1.16540	0.39112
53317	0.028	0.041	0.023	1.24211	1.24718	0.41168
53318	0.027	0.042	0.023	1.28151	1.19899	0.41850
53319	0.026	0.041	0.024	1.27951	1.16685	0.42997
53320	0.029	0.043	0.025	1.29753	1.29856	0.47138
53321	0.027	0.044	0.025	1.30664	1.27999	0.51405
53322	0.027	0.044	0.025	1.26837	1.29448	0.59172
53323	0.028	0.045	0.026	1.33813	1.34039	0.73064
53324	0.029	0.047	0.027	1.39017	1.38608	0.92238
53325	0.033	0.049	0.029	1.46062	1.49444	1.19655
53326	0.036	0.050	0.036	1.65839	1.71440	1.70591
53327	0.033	0.048	0.033	1.49748	1.54688	1.31414
53328	0.030	0.045	0.031	1.36530	1.39760	1.02107
53329	0.030	0.044	0.030	1.31671	1.42710	0.87657
53330	0.029	0.043	0.029	1.29916	1.33652	0.73264
53331	0.030	0.043	0.029	1.35049	1.37571	0.69184
53332	0.029	0.041	0.028	1.29952	1.29180	0.60529
53333	0.029	0.041	0.027	1.28837	1.23011	0.54673
53334	0.029	0.041	0.026	1.31420	1.22503	0.51661
53335	0.028	0.039	0.025	1.18233	1.21686	0.46695
53336	0.029	0.041	0.025	1.22321	1.25783	0.47965
53337	0.028	0.037	0.023	1.13261	1.13976	0.41083
53338	0.026	0.036	0.023	1.14040	1.07159	0.39307
53339	0.027	0.035	0.022	1.08885	1.07228	0.37678
53340	0.026	0.035	0.021	1.07975	1.05053	0.36017
53341	0.026	0.034	0.020	1.10490	0.99895	0.34705
53342	0.027	0.034	0.020	1.10845	1.05504	0.35396
53343	0.028	0.033	0.019	1.11878	1.02353	0.36318
53344	0.027	0.032	0.019	1.05277	1.01808	0.35095
53345	0.026	0.030	0.018	1.00485	0.94062	0.32156
53346	0.028	0.030	0.018	0.99408	0.99430	0.33203

53347	0.028	0.030	0.018	1.00809	0.99131	0.34954
53348	0.027	0.029	0.017	0.89139	0.99321	0.29960
53349	0.031	0.033	0.018	1.04751	1.19902	0.41540
53350	0.027	0.028	0.016	0.95163	0.95445	0.32981
53351	0.027	0.027	0.016	0.92930	0.97559	0.35985
53352	0.027	0.027	0.015	0.92856	0.93713	0.33417
53353	0.026	0.026	0.015	0.95617	0.87380	0.32675
53354	0.025	0.026	0.014	0.97135	0.80549	0.29684
53355	0.026	0.026	0.014	0.92028	0.87979	0.30759
53356	0.025	0.024	0.014	0.86876	0.85301	0.28865
53357	0.026	0.026	0.014	0.89151	0.95890	0.32660
53358	0.027	0.026	0.014	0.92132	0.95710	0.35053
53359	0.026	0.025	0.014	0.91288	0.91031	0.33000
53360	0.029	0.027	0.015	0.98432	1.00270	0.37556
53361	0.026	0.028	0.015	1.01136	0.92057	0.34892
53362	0.027	0.028	0.015	1.04521	0.86039	0.35664
53363	0.027	0.025	0.015	0.94299	0.89053	0.31915
53364	0.026	0.026	0.015	0.90015	0.91281	0.32120
53365	0.026	0.026	0.015	0.83411	0.97794	0.31370
53366	0.028	0.028	0.016	0.97827	0.98823	0.34437
53367	0.027	0.029	0.017	1.02696	0.96705	0.34970
53368	0.028	0.030	0.018	1.03104	1.02354	0.37868
53369	0.031	0.034	0.019	1.08172	1.21099	0.45602
53370	0.031	0.035	0.020	1.09998	1.20959	0.49588
53371	0.030	0.034	0.020	1.19133	1.06104	0.47005
53372	0.030	0.035	0.020	1.13153	1.17730	0.47988
53373	0.029	0.035	0.021	1.14562	1.12602	0.45383
53374	0.027	0.035	0.021	1.13491	1.04620	0.45983
53375	0.028	0.036	0.022	1.14331	1.13599	0.55035
53376	0.028	0.037	0.023	1.13870	1.12843	0.59769
53377	0.029	0.039	0.024	1.22513	1.17912	0.66582
53378	0.028	0.039	0.024	1.21007	1.19966	0.67795
53379	0.030	0.039	0.025	1.21066	1.23529	0.73694
53380	0.029	0.039	0.025	1.22045	1.24816	0.69140
53381	0.030	0.041	0.026	1.22664	1.25773	0.73400
53382	0.031	0.043	0.027	1.34258	1.31830	0.73618
53383	0.029	0.042	0.027	1.23853	1.30219	0.77208
53384	0.030	0.043	0.028	1.35638	1.29096	0.70686
53385	0.029	0.043	0.028	1.28891	1.26568	0.74872

53386	0.030	0.046	0.030	1.36145	1.36102	0.78342
53387	0.031	0.046	0.030	1.38661	1.34718	0.85662
53388	0.032	0.048	0.032	1.43090	1.38746	0.97554
53389	0.033	0.048	0.033	1.48373	1.39367	1.38113
53390	0.036	0.051	0.035	1.60278	1.57300	1.83087
53391	0.037	0.053	0.038	1.71508	1.71312	2.60169
53392	0.033	0.041	0.026	1.25389	1.39928	0.89830
53393	0.029	0.039	0.024	1.23904	1.22324	0.72023
53394	0.027	0.038	0.023	1.16236	1.15614	0.59230
53395	0.027	0.037	0.022	1.10329	1.15424	0.49067
53396	0.026	0.036	0.021	1.08238	1.11327	0.42932
53397	0.025	0.036	0.021	1.13281	1.03380	0.39529
53398	0.024	0.035	0.020	1.10279	1.03185	0.36133
53399	0.025	0.034	0.020	1.04430	1.06383	0.34171
53400	0.025	0.035	0.020	1.05365	1.11247	0.33515
53401	0.025	0.034	0.019	1.07456	1.02716	0.32521
53402	0.026	0.034	0.019	1.08882	1.05859	0.32793
53403	0.024	0.033	0.019	1.00981	1.01592	0.31071
53404	0.026	0.033	0.018	1.06531	1.00930	0.31128
53405	0.028	0.034	0.019	1.14661	1.01676	0.33472
53406	0.024	0.031	0.018	0.96501	0.96752	0.29459
53407	0.026	0.033	0.018	1.01512	1.07546	0.30705
53408	0.027	0.034	0.018	1.04723	1.10070	0.33251
53409	0.025	0.030	0.017	0.96068	0.99947	0.29780
53410	0.026	0.032	0.017	1.06303	1.01097	0.33961
53411	0.027	0.031	0.017	1.03559	1.03379	0.33686
53412	0.027	0.032	0.017	1.02435	1.07957	0.36575
53413	0.027	0.032	0.016	1.04464	1.04380	0.35296
53414	0.027	0.032	0.016	1.08188	1.03191	0.35687
53415	0.026	0.031	0.016	0.98949	1.03302	0.33201
53416	0.025	0.031	0.016	0.98622	1.02279	0.32720
53417	0.026	0.032	0.016	1.02530	1.05748	0.36049
53418	0.025	0.030	0.015	0.96832	1.00172	0.33079
53419	0.027	0.031	0.015	1.01238	1.02332	0.33994
53420	0.027	0.031	0.015	1.00003	1.03679	0.34508
53421	0.026	0.031	0.015	1.00953	1.03520	0.36240
53422	0.028	0.032	0.016	1.06905	1.08694	0.39386
53423	0.028	0.032	0.016	1.05496	1.08775	0.38107
53424	0.027	0.031	0.015	1.09252	0.97822	0.37720

53425	0.028	0.032	0.016	1.11614	1.00466	0.39031
53426	0.028	0.032	0.015	1.06180	1.09381	0.38409
53427	0.027	0.033	0.015	1.03247	1.11188	0.37857
53428	0.028	0.032	0.016	1.05635	1.11741	0.39085
53429	0.027	0.032	0.016	1.03982	1.10702	0.39036
53430	0.027	0.033	0.016	1.10167	1.11177	0.40735
53431	0.028	0.033	0.016	1.11737	1.10963	0.39825
53432	0.029	0.035	0.017	1.16391	1.15346	0.41282
53433	0.027	0.033	0.016	1.04585	1.10475	0.37076
53434	0.028	0.033	0.016	1.07731	1.12762	0.36936
53435	0.028	0.034	0.017	1.16181	1.09888	0.37184
53436	0.027	0.035	0.017	1.08953	1.16747	0.37893
53437	0.027	0.034	0.017	1.15049	1.10125	0.38091
53438	0.026	0.034	0.017	1.14648	1.04566	0.35057
53439	0.026	0.033	0.017	1.08970	1.02328	0.32515
53440	0.026	0.034	0.018	1.08510	1.06152	0.31988
53441	0.025	0.034	0.018	1.07023	1.02569	0.31510
53442	0.027	0.035	0.018	1.07468	1.16671	0.32740
53443	0.024	0.035	0.018	1.04673	1.05299	0.30636
53444	0.025	0.035	0.019	1.06592	1.07431	0.30749
53445	0.027	0.038	0.019	1.16483	1.12409	0.36665
53446	0.027	0.038	0.020	1.17618	1.14329	0.36924
53447	0.027	0.038	0.020	1.16031	1.17489	0.38064
53448	0.026	0.039	0.021	1.21000	1.14773	0.39498
53449	0.025	0.039	0.021	1.18644	1.16259	0.39497
53450	0.025	0.039	0.021	1.15120	1.17860	0.40410
53451	0.026	0.040	0.022	1.20011	1.18003	0.42107
53452	0.026	0.040	0.023	1.20058	1.19345	0.44762
53453	0.026	0.041	0.023	1.23976	1.19488	0.47297
53454	0.028	0.043	0.024	1.34613	1.24415	0.54398
53455	0.029	0.045	0.025	1.38049	1.31327	0.62341
53456	0.029	0.046	0.025	1.37143	1.38521	0.72184
53457	0.030	0.046	0.026	1.40166	1.39181	0.76837
53458	0.031	0.048	0.027	1.45025	1.42119	0.85283
53459	0.030	0.049	0.027	1.48118	1.40062	0.78733
53460	0.032	0.049	0.027	1.47592	1.45497	0.81903
53461	0.030	0.049	0.028	1.42211	1.50366	0.87243
53462	0.029	0.049	0.028	1.41306	1.46174	0.98330
53463	0.032	0.051	0.029	1.56962	1.50497	1.10181

53464	0.033	0.052	0.031	1.61767	1.53274	1.31284
53465	0.036	0.056	0.034	1.80853	1.67380	1.80955
53466	0.034	0.060	0.036	1.69680	1.84851	1.03525
53467	0.031	0.059	0.034	1.67930	1.75366	0.80126
53468	0.029	0.057	0.033	1.62162	1.63476	0.61753
53469	0.029	0.056	0.031	1.63572	1.58641	0.54711
53470	0.027	0.055	0.031	1.56740	1.53508	0.48568
53471	0.030	0.055	0.030	1.54258	1.62569	0.48962
53472	0.029	0.053	0.029	1.46399	1.58288	0.46713
53473	0.028	0.053	0.029	1.55090	1.45255	0.47353
53474	0.028	0.051	0.028	1.48351	1.43481	0.45109
53475	0.030	0.051	0.028	1.49169	1.48409	0.48162
53476	0.027	0.049	0.027	1.44047	1.39456	0.45851
53477	0.030	0.049	0.027	1.44071	1.46333	0.50060
53478	0.031	0.048	0.027	1.46682	1.47599	0.54504
53479	0.029	0.047	0.026	1.42674	1.39890	0.52546
53480	0.031	0.047	0.027	1.50013	1.51140	0.63022
53481	0.029	0.045	0.025	1.41608	1.44172	0.53991
53482	0.032	0.045	0.025	1.52209	1.43293	0.60719
53483	0.030	0.043	0.024	1.40223	1.38292	0.56199
53484	0.031	0.043	0.024	1.39200	1.44988	0.60241
53485	0.030	0.042	0.024	1.33429	1.41867	0.58244
53486	0.030	0.040	0.023	1.33202	1.40598	0.61298
53487	0.032	0.040	0.024	1.37341	1.41855	0.64847
53488	0.031	0.039	0.023	1.37894	1.36102	0.67765
53489	0.034	0.040	0.023	1.44057	1.39456	0.69083
53490	0.031	0.039	0.022	1.40091	1.28241	0.65101
53491	0.029	0.037	0.021	1.22983	1.18349	0.52516
53492	0.032	0.038	0.021	1.25031	1.29598	0.59109
53493	0.028	0.036	0.019	1.18728	1.15731	0.48939
53494	0.027	0.035	0.018	1.16006	1.13859	0.44871
53495	0.028	0.036	0.019	1.16871	1.16596	0.46583
53496	0.025	0.033	0.017	1.11244	1.01199	0.37507
53497	0.027	0.033	0.017	1.11213	1.01598	0.37804
53498	0.026	0.032	0.017	1.01941	1.03232	0.33663
53499	0.024	0.030	0.016	0.94881	0.95057	0.29305
53500	0.027	0.032	0.016	0.98333	1.03098	0.31618
53501	0.027	0.032	0.016	1.04514	1.03424	0.33942
53502	0.028	0.032	0.016	1.10658	1.03972	0.36510

53503	0.027	0.032	0.016	1.00740	1.08452	0.34130
53504	0.025	0.031	0.016	0.97333	1.01090	0.32965
53505	0.026	0.031	0.016	1.04230	0.98360	0.33074
53506	0.026	0.031	0.016	0.99177	1.03469	0.34105
53507	0.027	0.031	0.016	0.96512	1.06683	0.33601
53508	0.028	0.031	0.016	1.06484	1.01915	0.34317
53509	0.027	0.030	0.017	0.97851	1.02647	0.33685
53510	0.026	0.027	0.016	0.92077	0.96070	0.33432
53511	0.029	0.028	0.016	0.97381	1.03181	0.34229
53512	0.024	0.026	0.016	0.89370	0.85182	0.30355
53513	0.030	0.030	0.017	1.07214	1.00895	0.35843
53514	0.028	0.029	0.022	1.02012	0.99813	0.52024
53515	0.027	0.028	0.021	1.00905	0.95326	0.45527
53516	0.028	0.030	0.020	1.01137	1.05408	0.43981
53517	0.025	0.027	0.020	0.85688	0.95228	0.37910
53518	0.028	0.030	0.020	0.98771	1.02713	0.39203
53519	0.025	0.028	0.019	0.94941	0.90279	0.33979
53520	0.025	0.027	0.019	0.91095	0.92803	0.33125
53521	0.026	0.028	0.019	0.95797	0.94103	0.33986
53522	0.025	0.028	0.018	0.90759	0.96210	0.32549
53523	0.028	0.030	0.018	1.01009	1.01978	0.33870
53524	0.026	0.030	0.018	0.98641	0.99894	0.33901
53525	0.026	0.029	0.017	0.92292	0.99660	0.31805
53526	0.027	0.030	0.017	0.95249	1.07110	0.34830
53527	0.026	0.029	0.017	0.95162	0.99545	0.32377
53528	0.026	0.030	0.017	1.02037	0.97233	0.33943
53529	0.024	0.028	0.016	0.91963	0.91521	0.29586
53530	0.025	0.029	0.016	0.96162	0.93478	0.30667
53531	0.025	0.028	0.016	0.91552	0.92819	0.28849
53532	0.025	0.028	0.016	0.92842	0.92279	0.30800
53533	0.026	0.030	0.016	1.00850	0.97538	0.33859
53534	0.025	0.029	0.016	0.94594	0.95236	0.31424
53535	0.024	0.029	0.016	0.92755	0.90598	0.29881
53536	0.027	0.030	0.016	0.93149	1.00789	0.31930
53537	0.025	0.029	0.016	0.93355	0.93718	0.31452
53538	0.025	0.030	0.016	0.92305	0.99382	0.33084
53539	0.028	0.032	0.017	1.08844	1.04868	0.39807
53540	0.025	0.031	0.016	1.03837	0.95009	0.38288
53541	0.027	0.033	0.017	1.13949	1.04378	0.44777

53542	0.027	0.034	0.017	1.15014	1.05696	0.46178
53543	0.028	0.034	0.018	1.14983	1.14200	0.50698
53544	0.029	0.035	0.019	1.19875	1.20360	0.53671
53545	0.029	0.036	0.019	1.27063	1.16758	0.54589
53546	0.029	0.036	0.019	1.20112	1.23064	0.51188
53547	0.027	0.036	0.018	1.16935	1.14667	0.46837
53548	0.030	0.036	0.019	1.18450	1.21131	0.46705
53549	0.030	0.036	0.019	1.23863	1.13571	0.44441
53550	0.029	0.036	0.019	1.22563	1.17143	0.46594
53551	0.028	0.038	0.019	1.26603	1.17070	0.49068
53552	0.031	0.038	0.020	1.20470	1.29167	0.49348
53553	0.029	0.036	0.019	1.17636	1.19553	0.43866
53554	0.028	0.037	0.019	1.20846	1.12473	0.40221
53555	0.026	0.036	0.019	1.16772	1.11166	0.37696
53556	0.026	0.036	0.020	1.15731	1.09642	0.36985
53557	0.028	0.037	0.020	1.17696	1.18238	0.36960
53558	0.027	0.038	0.021	1.15749	1.22647	0.37452
53559	0.026	0.037	0.021	1.16155	1.16373	0.35911
53560	0.026	0.039	0.021	1.18787	1.20785	0.36540
53561	0.028	0.040	0.022	1.22673	1.25387	0.37083
53562	0.027	0.039	0.022	1.19546	1.21136	0.36235
53563	0.026	0.041	0.022	1.16171	1.32238	0.37064
53564	0.028	0.041	0.023	1.22708	1.28216	0.38629
53565	0.027	0.042	0.024	1.22205	1.31020	0.41319
53566	0.028	0.043	0.024	1.27837	1.27602	0.43982
53567	0.029	0.044	0.025	1.28617	1.30957	0.48716
53568	0.029	0.045	0.026	1.28190	1.32850	0.54282
53569	0.030	0.046	0.027	1.35000	1.35825	0.62175
53570	0.030	0.046	0.027	1.33199	1.40042	0.66147
53571	0.029	0.046	0.028	1.38783	1.37843	0.75083
53572	0.028	0.047	0.028	1.42879	1.38020	0.79207
53573	0.031	0.049	0.029	1.48322	1.50194	0.91137
53574	0.030	0.049	0.030	1.45767	1.51025	0.90399
53575	0.031	0.050	0.031	1.52016	1.53382	1.03256
53576	0.035	0.053	0.032	1.70664	1.58947	1.40907
53577	0.039	0.081	0.061	2.37141	2.53066	2.40161
53578	0.034	0.078	0.057	2.18003	2.30791	1.48602
53579	0.031	0.077	0.056	2.13605	2.17327	1.19922
53580	0.032	0.075	0.054	2.04485	2.17280	1.13080

53581	0.031	0.074	0.053	2.01305	2.09929	1.00484
53582	0.030	0.073	0.052	2.00306	2.07860	0.99560
53583	0.031	0.072	0.051	2.01358	2.03101	1.01671
53584	0.034	0.071	0.050	2.03508	2.03969	1.06769
53585	0.031	0.069	0.049	1.91823	2.02080	1.06643
53586	0.030	0.068	0.048	1.89830	2.04413	0.98147
53587	0.032	0.067	0.047	1.96729	2.00412	0.96736
53588	0.030	0.065	0.046	1.91353	1.90693	1.10025
53589	0.031	0.065	0.045	1.85001	1.98952	1.04417
53590	0.031	0.063	0.044	1.82953	1.91333	1.02235
53591	0.030	0.062	0.043	1.77552	1.88747	0.99170
53592	0.031	0.061	0.042	1.80012	1.85533	1.00880
53593	0.031	0.061	0.041	1.79055	1.86245	1.05686
53594	0.032	0.059	0.040	1.77236	1.87020	1.02516
53595	0.032	0.057	0.039	1.72002	1.78621	1.06381
53596	0.031	0.056	0.038	1.68110	1.73985	0.98413
53597	0.032	0.055	0.038	1.62882	1.78148	1.07657
53598	0.031	0.053	0.037	1.59743	1.77770	0.99455
53599	0.031	0.054	0.036	1.69306	1.73448	1.00904
53600	0.032	0.053	0.036	1.67910	1.77542	1.12767
53601	0.031	0.050	0.034	1.55200	1.80271	1.08605
53602	0.033	0.051	0.034	1.72958	1.75092	1.08502
53603	0.032	0.049	0.033	1.63099	1.69125	1.21859
53604	0.033	0.049	0.032	1.68719	1.68148	1.09887
53605	0.033	0.049	0.031	1.65105	1.69004	1.22072
53606	0.033	0.047	0.030	1.55602	1.68272	1.01184
53607	0.031	0.045	0.028	1.57590	1.42732	0.78171
53608	0.029	0.045	0.027	1.54480	1.34610	0.66437
53609	0.029	0.044	0.026	1.29966	1.50819	0.63064
53610	0.029	0.040	0.024	1.27370	1.29382	0.54197
53611	0.029	0.039	0.023	1.20503	1.24903	0.48345
53612	0.028	0.038	0.022	1.14889	1.18785	0.43232
53613	0.027	0.037	0.022	1.09698	1.16344	0.39968
53614	0.026	0.037	0.021	1.10162	1.11950	0.39210
53615	0.025	0.035	0.020	1.02357	1.11569	0.37794
53616	0.026	0.034	0.019	1.00191	1.11038	0.37202
53617	0.031	0.038	0.021	1.22547	1.23015	0.59318
53618	0.025	0.032	0.018	0.96690	1.05308	0.36022
53619	0.026	0.033	0.018	1.01409	1.06312	0.37064

53620	0.026	0.032	0.017	1.02830	1.04019	0.36242
53621	0.026	0.032	0.017	0.98361	1.03332	0.36644
53622	0.029	0.034	0.017	1.06822	1.13093	0.40310
53623	0.027	0.032	0.016	0.98142	1.07404	0.38045
53624	0.027	0.033	0.016	1.10223	1.01734	0.39323
53625	0.028	0.033	0.016	1.11719	1.06187	0.40944
53626	0.026	0.030	0.015	0.96802	0.99763	0.39695
53627	0.027	0.029	0.015	0.92846	1.04530	0.38871
53628	0.028	0.029	0.015	0.93626	1.09365	0.40079
53629	0.025	0.026	0.014	0.87622	0.90780	0.34323
53630	0.027	0.027	0.015	1.00897	0.92707	0.36917
53631	0.027	0.027	0.015	0.94019	0.97514	0.37874
53632	0.025	0.027	0.015	0.91692	0.90225	0.36346
53633	0.026	0.027	0.015	0.95711	0.91425	0.37088
53634	0.027	0.028	0.016	0.97044	0.96740	0.40703
53635	0.027	0.027	0.017	0.93349	0.94580	0.40926
53636	0.025	0.026	0.017	0.87003	0.93321	0.41882
53637	0.028	0.029	0.019	0.98144	1.04297	0.51153
53638	0.029	0.030	0.020	0.94814	1.12888	0.60525
53639	0.031	0.033	0.022	1.05912	1.23188	0.77493
53640	0.033	0.036	0.024	1.19938	1.22292	0.96806
53641	0.037	0.039	0.027	1.37514	1.34898	1.42260
53642	0.035	0.035	0.022	1.18515	1.19480	0.70694
53643	0.029	0.029	0.020	0.97903	1.03169	0.52518
53644	0.029	0.028	0.018	0.99993	1.02699	0.46942
53645	0.028	0.027	0.017	1.02681	0.90941	0.41985
53646	0.029	0.027	0.017	1.05172	0.88843	0.39205
53647	0.030	0.029	0.016	1.08507	0.95732	0.40848
53648	0.028	0.028	0.016	0.97113	0.96049	0.39107
53649	0.030	0.030	0.016	1.04178	1.07123	0.43909
53650	0.028	0.029	0.015	1.03920	0.97484	0.42480
53651	0.027	0.029	0.015	1.01532	0.97600	0.43569
53652	0.027	0.028	0.015	1.01476	0.95610	0.42858
53653	0.028	0.030	0.016	1.09330	0.98162	0.47596
53654	0.031	0.033	0.017	1.01365	1.30325	0.59286
53655	0.029	0.034	0.018	1.04708	1.26865	0.65878
53656	0.032	0.038	0.020	1.26471	1.34214	0.77679
53657	0.030	0.039	0.021	1.23270	1.32300	0.84939
53658	0.028	0.040	0.022	1.22547	1.38195	0.85886

53659	0.028	0.042	0.023	1.28141	1.41757	0.89021
53660	0.028	0.042	0.023	1.33278	1.29030	0.83009
53661	0.030	0.045	0.024	1.39415	1.42680	0.83679
53662	0.029	0.046	0.024	1.43696	1.35347	0.78337
53663	0.030	0.047	0.025	1.47221	1.43929	0.74230
53664	0.031	0.050	0.026	1.46681	1.56173	0.79668
53665	0.032	0.051	0.028	1.53383	1.57527	0.81061
53666	0.031	0.052	0.028	1.60851	1.52827	0.80321
53667	0.030	0.054	0.029	1.61655	1.52835	0.77377
53668	0.033	0.056	0.031	1.62917	1.70765	0.81296
53669	0.030	0.057	0.032	1.58431	1.72124	0.79757
53670	0.031	0.060	0.033	1.79255	1.65885	0.79744
53671	0.031	0.061	0.034	1.85203	1.67293	0.80555
53672	0.032	0.065	0.036	1.91296	1.78273	0.82113
53673	0.032	0.066	0.037	1.97489	1.78378	0.88650
53674	0.033	0.068	0.039	1.85426	2.04481	0.95720
53675	0.033	0.070	0.041	1.94376	2.09631	1.17838
53676	0.035	0.073	0.043	2.19125	2.12415	1.35394
53677	0.036	0.077	0.045	2.33337	2.23929	1.60233
53678	0.038	0.079	0.047	2.44007	2.39468	2.02266
54569	0.055	0.038	0.038	1.14592	1.48718	1.31522
54570	0.053	0.036	0.035	0.97295	1.40034	1.04569
54571	0.052	0.034	0.032	0.87410	1.31261	0.85894
54572	0.051	0.034	0.031	0.85300	1.27087	0.63836
54573	0.049	0.031	0.029	0.75297	1.21006	0.45131
54574	0.046	0.029	0.028	0.70306	1.14897	0.35339
54575	0.045	0.029	0.027	0.69836	1.11865	0.28226
54576	0.045	0.028	0.026	0.68226	1.10313	0.24620
54577	0.045	0.028	0.025	0.68403	1.10398	0.22232
54578	0.042	0.025	0.024	0.60676	1.04084	0.19396
54579	0.043	0.028	0.024	0.68746	1.06014	0.19791
54580	0.041	0.028	0.023	0.67301	1.02358	0.18396
54581	0.039	0.025	0.023	0.61697	0.97495	0.16952
54582	0.039	0.026	0.022	0.64664	0.96910	0.16758
54583	0.039	0.026	0.022	0.62435	0.95432	0.16633
54584	0.038	0.024	0.021	0.58699	0.93292	0.16178
54585	0.037	0.025	0.021	0.61271	0.91444	0.16092
54586	0.036	0.025	0.021	0.61211	0.89760	0.16553
54587	0.036	0.025	0.020	0.61807	0.88183	0.16973

54588	0.036	0.026	0.021	0.65321	0.89490	0.18833
54589	0.036	0.027	0.020	0.65301	0.88081	0.19763
54590	0.037	0.026	0.020	0.63439	0.90284	0.20974
54591	0.036	0.027	0.020	0.66169	0.90250	0.22194
54592	0.037	0.028	0.020	0.69083	0.90999	0.26502
54593	0.037	0.028	0.020	0.68288	0.91816	0.31527
54594	0.036	0.027	0.020	0.64361	0.88519	0.34622
54595	0.037	0.029	0.020	0.71579	0.91327	0.37053
54596	0.038	0.031	0.020	0.78046	0.93510	0.41399
54597	0.037	0.031	0.020	0.75361	0.92156	0.43367
54598	0.037	0.031	0.020	0.78111	0.93282	0.39942
54599	0.035	0.030	0.019	0.76115	0.88651	0.43977
54600	0.036	0.031	0.020	0.78953	0.89556	0.44560
54601	0.034	0.030	0.019	0.76424	0.86553	0.41564
54602	0.035	0.030	0.019	0.76597	0.88351	0.42872
54603	0.035	0.030	0.019	0.77251	0.89177	0.43874
54604	0.033	0.029	0.018	0.69475	0.84193	0.40894
54605	0.034	0.030	0.019	0.77674	0.85731	0.39513
54606	0.033	0.030	0.019	0.75388	0.83588	0.41865
54607	0.034	0.030	0.019	0.75754	0.85618	0.44953
54608	0.035	0.032	0.019	0.79864	0.89144	0.43137
54609	0.035	0.031	0.019	0.79836	0.88626	0.43537
54610	0.035	0.031	0.020	0.80053	0.88607	0.44944
54611	0.036	0.032	0.020	0.81958	0.90717	0.46550
54612	0.035	0.031	0.020	0.78527	0.87903	0.43906
54613	0.034	0.031	0.020	0.79192	0.85798	0.43305
54614	0.033	0.031	0.020	0.78085	0.83735	0.41637
54615	0.033	0.031	0.020	0.77214	0.84142	0.41313
54616	0.033	0.030	0.020	0.76176	0.82050	0.39371
54617	0.032	0.030	0.020	0.74632	0.81554	0.36641
54618	0.034	0.029	0.020	0.72842	0.83983	0.38459
54619	0.034	0.031	0.020	0.78571	0.86717	0.37841
54620	0.034	0.032	0.020	0.79264	0.84879	0.34695
54621	0.031	0.031	0.019	0.78221	0.78379	0.27191
54622	0.028	0.028	0.019	0.68885	0.69920	0.21756
54623	0.029	0.029	0.019	0.71434	0.71601	0.21269
54624	0.030	0.029	0.019	0.74068	0.74189	0.21717
54625	0.030	0.028	0.019	0.70117	0.72586	0.19576
54626	0.028	0.028	0.018	0.71071	0.67573	0.17788

54627	0.030	0.032	0.019	0.83211	0.74344	0.21109
54628	0.026	0.028	0.014	0.69390	0.63808	0.17100
54629	0.028	0.030	0.015	0.74816	0.70585	0.18386
54630	0.025	0.027	0.014	0.66731	0.62138	0.16364
54631	0.027	0.028	0.014	0.69315	0.67240	0.17869
54632	0.025	0.027	0.014	0.66373	0.61196	0.15995
54633	0.026	0.027	0.013	0.67791	0.63359	0.16880
54634	0.025	0.027	0.013	0.67190	0.61546	0.16420
54635	0.027	0.029	0.014	0.71848	0.66103	0.17373
54636	0.026	0.027	0.013	0.66092	0.63257	0.15545
54637	0.028	0.027	0.014	0.65882	0.67554	0.17309
54638	0.027	0.028	0.014	0.70245	0.65679	0.16639
54639	0.029	0.028	0.014	0.69989	0.69755	0.18061
54640	0.028	0.027	0.014	0.67353	0.67582	0.17133
54641	0.029	0.029	0.014	0.72377	0.70345	0.18579
54642	0.029	0.029	0.014	0.71886	0.70646	0.17985
54643	0.030	0.029	0.014	0.71798	0.71744	0.18100
54644	0.029	0.027	0.014	0.67015	0.70289	0.17419
54645	0.031	0.029	0.014	0.71962	0.76726	0.20098
54646	0.028	0.027	0.014	0.66628	0.70578	0.18004
54647	0.029	0.027	0.014	0.67257	0.71503	0.18752
54648	0.029	0.029	0.015	0.73222	0.73401	0.19811
54649	0.032	0.030	0.016	0.77780	0.79694	0.23685
54650	0.032	0.029	0.015	0.71207	0.79335	0.21117
54651	0.032	0.031	0.016	0.77999	0.79270	0.22488
54652	0.031	0.028	0.015	0.69294	0.75741	0.17711
54653	0.031	0.027	0.015	0.67410	0.75488	0.17375
54654	0.032	0.027	0.015	0.67887	0.78622	0.17511
54655	0.031	0.026	0.015	0.64445	0.77402	0.16743
54656	0.033	0.027	0.016	0.68115	0.80613	0.17874
54657	0.032	0.027	0.016	0.68186	0.79618	0.17382
54658	0.032	0.025	0.016	0.62206	0.78743	0.15746
54659	0.034	0.027	0.017	0.67258	0.83598	0.17029
54660	0.034	0.026	0.017	0.66219	0.83209	0.16440
54661	0.034	0.026	0.017	0.63997	0.84829	0.16582
54662	0.034	0.026	0.017	0.65185	0.83700	0.16343
54663	0.035	0.027	0.018	0.68056	0.85696	0.16280
54664	0.035	0.026	0.018	0.63635	0.86637	0.16171
54665	0.036	0.027	0.019	0.67138	0.88503	0.17076

54666	0.037	0.028	0.019	0.68496	0.90717	0.16752
54667	0.036	0.026	0.020	0.63273	0.90060	0.16061
54668	0.037	0.026	0.020	0.64415	0.90842	0.16046
54669	0.038	0.027	0.021	0.66857	0.95393	0.17239
54670	0.040	0.027	0.021	0.66303	0.99024	0.17651
54671	0.040	0.028	0.022	0.69529	1.00248	0.18889
54672	0.041	0.027	0.022	0.66420	1.01818	0.18675
54673	0.040	0.026	0.022	0.64586	0.99945	0.18517
54674	0.042	0.029	0.023	0.72751	1.05162	0.21225
54675	0.042	0.027	0.023	0.67032	1.03634	0.22663
54676	0.044	0.029	0.024	0.73465	1.08011	0.29275
54677	0.045	0.031	0.025	0.77350	1.09936	0.37333
54678	0.048	0.034	0.028	0.87143	1.15674	0.52556
54679	0.046	0.032	0.027	0.79989	1.10945	0.49186
54680	0.045	0.030	0.026	0.73202	1.09592	0.36751
54681	0.043	0.028	0.025	0.69778	1.04390	0.28851
54682	0.041	0.026	0.024	0.64271	0.99914	0.23783
54683	0.041	0.028	0.024	0.68704	1.01161	0.21442
54684	0.040	0.026	0.023	0.63313	0.97602	0.19002
54685	0.040	0.027	0.023	0.65189	0.97662	0.18552
54686	0.040	0.027	0.022	0.67272	0.97219	0.18549
54687	0.038	0.025	0.022	0.62089	0.94219	0.16428
54688	0.037	0.025	0.021	0.61728	0.91644	0.16140
54689	0.038	0.026	0.021	0.65646	0.93907	0.16515
54690	0.036	0.024	0.020	0.59964	0.89864	0.15409
54691	0.035	0.023	0.020	0.57588	0.86635	0.14427
54692	0.035	0.024	0.019	0.60647	0.86808	0.15033
54693	0.035	0.026	0.019	0.65909	0.86965	0.16097
54694	0.035	0.026	0.019	0.62781	0.86050	0.16328
54695	0.035	0.026	0.019	0.63371	0.85094	0.17034
54696	0.035	0.028	0.019	0.69187	0.86786	0.18408
54697	0.033	0.026	0.018	0.62837	0.81428	0.16781
54698	0.033	0.026	0.018	0.63850	0.80969	0.17122
54699	0.032	0.025	0.017	0.62745	0.78913	0.17565
54700	0.032	0.025	0.017	0.60803	0.79015	0.17672
54701	0.032	0.026	0.017	0.65306	0.79732	0.18864
54702	0.032	0.026	0.017	0.65329	0.78578	0.19909
54703	0.033	0.029	0.017	0.71961	0.82197	0.22273
54704	0.033	0.028	0.017	0.68895	0.80508	0.21762

54705	0.032	0.028	0.016	0.69128	0.77846	0.21363
54706	0.030	0.026	0.016	0.65488	0.73251	0.20179
54707	0.030	0.026	0.016	0.62960	0.73688	0.20547
54708	0.032	0.028	0.016	0.71142	0.77391	0.22007
54709	0.031	0.027	0.016	0.67825	0.75349	0.21545
54710	0.030	0.026	0.015	0.63694	0.73925	0.20630
54711	0.031	0.028	0.016	0.70516	0.77432	0.21890
54712	0.032	0.029	0.016	0.72926	0.79651	0.22963
54713	0.030	0.027	0.015	0.67411	0.74541	0.22169
54714	0.031	0.028	0.016	0.69765	0.75346	0.22973
54715	0.032	0.031	0.016	0.77442	0.78671	0.24908
54716	0.032	0.031	0.017	0.77851	0.78475	0.25215
54717	0.033	0.030	0.017	0.75335	0.82518	0.26124
54718	0.033	0.030	0.017	0.75071	0.80656	0.25962
54719	0.033	0.032	0.018	0.78785	0.81872	0.27473
54720	0.033	0.032	0.018	0.79650	0.80056	0.26208
54721	0.032	0.030	0.017	0.76323	0.77989	0.23763
54722	0.032	0.030	0.017	0.76043	0.78228	0.24334
54723	0.032	0.028	0.017	0.71113	0.76347	0.21935
54724	0.030	0.027	0.016	0.67469	0.73326	0.19909
54725	0.028	0.027	0.016	0.66909	0.67511	0.18194
54726	0.027	0.027	0.016	0.67304	0.65319	0.17067
54727	0.026	0.026	0.016	0.66237	0.62923	0.16028
54728	0.025	0.024	0.016	0.59713	0.59003	0.14935
54729	0.027	0.026	0.016	0.65594	0.64461	0.16887
54730	0.030	0.030	0.017	0.74354	0.73944	0.19231
54731	0.032	0.029	0.017	0.74770	0.77312	0.20280
54732	0.030	0.029	0.017	0.73670	0.72456	0.18679
54733	0.028	0.028	0.014	0.69982	0.68538	0.17586
54734	0.029	0.029	0.015	0.73330	0.70713	0.18256
54735	0.028	0.029	0.015	0.73234	0.69711	0.18787
54736	0.029	0.029	0.015	0.72574	0.70376	0.20856
54737	0.028	0.029	0.014	0.71723	0.68099	0.18374
54738	0.026	0.027	0.013	0.65944	0.61531	0.16890
54739	0.026	0.028	0.013	0.70751	0.63382	0.17053
54740	0.026	0.027	0.013	0.67298	0.62517	0.16815
54741	0.026	0.026	0.013	0.64107	0.61953	0.16255
54742	0.029	0.029	0.014	0.70788	0.69699	0.17847
54743	0.029	0.028	0.014	0.68540	0.71047	0.17866

54744	0.027	0.026	0.014	0.65470	0.66736	0.16612
54745	0.028	0.026	0.014	0.65097	0.67244	0.16916
54746	0.029	0.028	0.014	0.69080	0.69256	0.17937
54747	0.030	0.028	0.014	0.69633	0.72770	0.18625
54748	0.029	0.027	0.014	0.67546	0.70700	0.17770
54749	0.030	0.028	0.014	0.68610	0.74351	0.18717
54750	0.029	0.026	0.014	0.65955	0.70848	0.16950
54751	0.028	0.026	0.014	0.64760	0.69230	0.16713
54752	0.028	0.027	0.014	0.67184	0.69844	0.17188
54753	0.028	0.025	0.014	0.61924	0.68104	0.16151
54754	0.028	0.025	0.014	0.63383	0.68981	0.16551
54755	0.030	0.029	0.014	0.73831	0.74349	0.18835
54756	0.030	0.027	0.015	0.68830	0.75403	0.18858
54757	0.030	0.027	0.015	0.67080	0.74333	0.18464
54758	0.032	0.028	0.015	0.70467	0.80477	0.20374
54759	0.031	0.028	0.015	0.70707	0.77416	0.19159
54760	0.032	0.028	0.015	0.70873	0.79527	0.18587
54761	0.031	0.026	0.015	0.65248	0.75943	0.16839
54762	0.031	0.028	0.016	0.70055	0.77872	0.17535
54763	0.031	0.027	0.016	0.68123	0.77304	0.17135
54764	0.033	0.028	0.017	0.69901	0.83520	0.18588
54765	0.034	0.028	0.017	0.70161	0.84252	0.18786
54766	0.034	0.029	0.017	0.73235	0.85990	0.18464
54767	0.033	0.025	0.017	0.62786	0.83120	0.16368
54768	0.034	0.026	0.017	0.65864	0.84364	0.17074
54769	0.034	0.027	0.018	0.67021	0.85307	0.16758
54770	0.034	0.024	0.018	0.60419	0.84826	0.15466
54771	0.035	0.026	0.018	0.64288	0.87893	0.16520
54772	0.038	0.028	0.019	0.70508	0.92976	0.17970
54773	0.037	0.025	0.019	0.62418	0.92575	0.16891
54774	0.037	0.026	0.019	0.63309	0.91459	0.16612
54775	0.036	0.024	0.020	0.60497	0.90418	0.16242
54776	0.038	0.026	0.020	0.63706	0.95239	0.17080
54777	0.038	0.025	0.021	0.62219	0.95598	0.18177
54778	0.039	0.026	0.021	0.63468	0.96851	0.19126
54779	0.040	0.028	0.022	0.68841	1.01055	0.21539
54780	0.040	0.026	0.022	0.65053	1.00629	0.22382
54781	0.043	0.028	0.023	0.68671	1.06461	0.26191
54782	0.043	0.029	0.024	0.71505	1.07577	0.29589

54783	0.045	0.029	0.025	0.72326	1.12798	0.36744
54784	0.047	0.032	0.027	0.82440	1.16799	0.48663
54785	0.051	0.036	0.030	0.95713	1.26606	0.71489
54786	0.049	0.035	0.030	0.91471	1.19832	0.65018
54787	0.046	0.032	0.027	0.81626	1.11461	0.45745
54788	0.044	0.030	0.026	0.75518	1.09348	0.34422
54789	0.042	0.027	0.025	0.67208	1.02920	0.26823
54790	0.043	0.029	0.024	0.71353	1.06044	0.24035
54791	0.041	0.027	0.024	0.65360	1.01597	0.20405
54792	0.039	0.027	0.023	0.65346	0.97833	0.19237
54793	0.040	0.028	0.023	0.69421	0.99647	0.19220
54794	0.038	0.026	0.022	0.64100	0.94850	0.17502
54795	0.038	0.027	0.022	0.66733	0.93589	0.17582
54796	0.037	0.027	0.021	0.67798	0.92167	0.17526
54797	0.037	0.026	0.021	0.65762	0.90858	0.16789
54798	0.036	0.025	0.020	0.63250	0.89461	0.15832
54799	0.037	0.027	0.020	0.67247	0.91634	0.17160
54800	0.037	0.027	0.020	0.66704	0.90521	0.17066
54801	0.036	0.026	0.019	0.63997	0.88083	0.16736
54802	0.036	0.028	0.019	0.68777	0.89830	0.18328
54803	0.033	0.026	0.018	0.63768	0.81909	0.15708
54804	0.033	0.026	0.018	0.64914	0.81593	0.16203
54805	0.032	0.026	0.017	0.64383	0.78742	0.16019
54806	0.032	0.025	0.017	0.62385	0.79346	0.15615
54807	0.033	0.026	0.017	0.65978	0.79783	0.16910
54808	0.031	0.025	0.016	0.62800	0.76358	0.16457
54809	0.031	0.026	0.016	0.64247	0.77143	0.16277
54810	0.031	0.027	0.016	0.66724	0.76337	0.17357
54811	0.032	0.028	0.016	0.70495	0.77981	0.18160
54812	0.031	0.027	0.015	0.66257	0.74965	0.17260
54813	0.031	0.027	0.015	0.66866	0.74822	0.16725
54814	0.031	0.028	0.015	0.70222	0.74426	0.17927
54815	0.029	0.025	0.015	0.62662	0.71375	0.16420
54816	0.031	0.026	0.015	0.66164	0.75323	0.18650
54817	0.029	0.026	0.015	0.65922	0.72303	0.17375
54818	0.029	0.025	0.014	0.62279	0.70239	0.16865
54819	0.030	0.027	0.015	0.69102	0.73284	0.18961
54820	0.030	0.027	0.015	0.68202	0.73656	0.19770
54821	0.030	0.028	0.015	0.70078	0.74324	0.20895

54822	0.031	0.030	0.015	0.74578	0.74079	0.20308
54823	0.030	0.028	0.015	0.70514	0.72261	0.19338
54824	0.031	0.030	0.015	0.74100	0.75344	0.22438
54825	0.032	0.031	0.016	0.76755	0.79289	0.22657
54826	0.032	0.031	0.016	0.76277	0.78692	0.23735
54827	0.030	0.029	0.016	0.70976	0.74186	0.21013
54828	0.030	0.030	0.016	0.75957	0.73304	0.21150
54829	0.030	0.029	0.016	0.72750	0.72583	0.19765
54830	0.029	0.028	0.015	0.70184	0.70631	0.18739
54831	0.028	0.028	0.015	0.69492	0.67372	0.17748
54832	0.026	0.026	0.014	0.65571	0.63456	0.15396
54833	0.025	0.026	0.014	0.65651	0.60089	0.14903
54834	0.024	0.025	0.014	0.60874	0.59313	0.15510
54835	0.028	0.027	0.015	0.68162	0.69190	0.16671
54836	0.026	0.026	0.015	0.65799	0.64759	0.16241
54837	0.026	0.025	0.014	0.61259	0.62282	0.15612
54838	0.027	0.027	0.015	0.69541	0.64461	0.17027
54839	0.027	0.028	0.015	0.71231	0.67586	0.17134
54840	0.026	0.027	0.015	0.69245	0.64587	0.17972
54841	0.026	0.028	0.016	0.72539	0.65132	0.17088
54842	0.025	0.029	0.015	0.72459	0.60059	0.16435
54843	0.025	0.028	0.015	0.69543	0.60477	0.16571
54844	0.027	0.029	0.015	0.72464	0.65515	0.17995
54845	0.028	0.030	0.015	0.75054	0.68856	0.20655
54846	0.028	0.030	0.015	0.74319	0.67882	0.19298
54847	0.029	0.030	0.015	0.75400	0.70359	0.19498
54848	0.028	0.029	0.015	0.71629	0.68808	0.19948
54849	0.028	0.030	0.015	0.72906	0.69166	0.20417
54850	0.029	0.028	0.014	0.68592	0.69819	0.19128
54851	0.029	0.030	0.015	0.74457	0.71575	0.19588
54852	0.029	0.028	0.015	0.69286	0.70791	0.18723
54853	0.029	0.029	0.015	0.71613	0.71299	0.19688
54854	0.031	0.030	0.015	0.74847	0.76633	0.21108
54855	0.030	0.028	0.015	0.70062	0.74659	0.19204
54856	0.031	0.030	0.015	0.74770	0.75727	0.19867
54857	0.029	0.027	0.014	0.68259	0.71997	0.18180
54858	0.031	0.028	0.015	0.69921	0.75089	0.19162
54859	0.030	0.027	0.014	0.67386	0.73014	0.17169
54860	0.030	0.026	0.014	0.65581	0.74844	0.17615

54861	0.030	0.027	0.014	0.67446	0.73551	0.17629
54862	0.029	0.025	0.014	0.63486	0.71966	0.16786
54863	0.029	0.025	0.014	0.63735	0.72469	0.16150
54864	0.029	0.027	0.015	0.68719	0.72121	0.16845
54865	0.029	0.025	0.015	0.62349	0.71635	0.15639
54866	0.030	0.026	0.015	0.66129	0.75548	0.16778
54867	0.030	0.025	0.015	0.64951	0.76304	0.16558
54868	0.030	0.026	0.016	0.65860	0.75777	0.16940
54869	0.032	0.029	0.017	0.73983	0.80983	0.18919
54870	0.032	0.027	0.017	0.69303	0.81267	0.17912
54871	0.034	0.029	0.018	0.73637	0.84734	0.20140
54872	0.036	0.030	0.019	0.77982	0.90453	0.23054
54873	0.039	0.032	0.021	0.82993	0.97384	0.27771
54874	0.038	0.031	0.020	0.78574	0.96035	0.27344
54875	0.037	0.030	0.019	0.77226	0.93783	0.22132
54876	0.035	0.026	0.019	0.65355	0.89070	0.18306
54877	0.035	0.026	0.019	0.64892	0.88673	0.17650
54878	0.036	0.027	0.020	0.69048	0.91089	0.17968
54879	0.037	0.026	0.020	0.64315	0.92360	0.17669
54880	0.038	0.026	0.021	0.65405	0.94795	0.17755
54881	0.038	0.026	0.021	0.65239	0.93613	0.17914
54882	0.038	0.026	0.021	0.63680	0.94808	0.17709
54883	0.038	0.026	0.022	0.63278	0.95656	0.18844
54884	0.040	0.026	0.022	0.64313	0.99461	0.20454
54885	0.041	0.027	0.024	0.66613	1.03259	0.23198
54886	0.043	0.029	0.024	0.71064	1.08018	0.27400
54887	0.045	0.031	0.026	0.74164	1.11185	0.35684
54888	0.046	0.031	0.027	0.76534	1.14842	0.38789
54889	0.047	0.030	0.027	0.72930	1.16875	0.41435
54890	0.048	0.032	0.028	0.78649	1.21414	0.49290
54891	0.049	0.034	0.030	0.86776	1.23808	0.58292
54892	0.051	0.035	0.031	0.89610	1.27355	0.72315
54893	0.087	0.041	0.057	1.20758	2.28200	1.39085
54894	0.085	0.038	0.053	1.07560	2.18455	1.07343
54895	0.082	0.037	0.051	0.97019	2.10950	0.85166
54896	0.079	0.035	0.049	0.89528	2.03848	0.68940
54897	0.077	0.035	0.047	0.88825	1.97629	0.58979
54898	0.074	0.032	0.045	0.80203	1.90683	0.51936
54899	0.072	0.032	0.044	0.77747	1.85728	0.48578

54900	0.070	0.031	0.042	0.77644	1.81151	0.44405
54901	0.070	0.033	0.041	0.82990	1.79835	0.45301
54902	0.068	0.031	0.040	0.76158	1.75243	0.48707
54903	0.064	0.031	0.039	0.76727	1.67251	0.43743
54904	0.064	0.031	0.038	0.80253	1.66818	0.44341
54905	0.061	0.031	0.036	0.78193	1.60483	0.42670
54906	0.059	0.029	0.035	0.74637	1.55125	0.40107
54907	0.057	0.032	0.034	0.84799	1.51192	0.39865
54908	0.055	0.030	0.033	0.76662	1.43667	0.45486
54909	0.054	0.030	0.031	0.80168	1.39651	0.37623
54910	0.052	0.030	0.030	0.78277	1.35288	0.35276
54911	0.051	0.028	0.029	0.74104	1.31918	0.34177
54912	0.048	0.027	0.028	0.68886	1.25480	0.30158
54913	0.048	0.029	0.027	0.75708	1.22229	0.28786
54914	0.046	0.028	0.026	0.71655	1.18460	0.26206
54915	0.045	0.028	0.025	0.71714	1.14660	0.25187
54916	0.042	0.028	0.023	0.72643	1.08050	0.23320
54917	0.042	0.029	0.022	0.74293	1.05946	0.23479
54918	0.038	0.027	0.021	0.69761	0.95825	0.20452
54919	0.037	0.027	0.020	0.70266	0.92808	0.20576
54920	0.037	0.027	0.020	0.68277	0.91165	0.19797
54921	0.035	0.027	0.019	0.67512	0.87449	0.19303
54922	0.033	0.026	0.018	0.65204	0.82420	0.18914
54923	0.032	0.026	0.017	0.64889	0.78537	0.18170
54924	0.031	0.026	0.017	0.65477	0.77015	0.18059
54925	0.031	0.025	0.017	0.62267	0.75714	0.17683
54926	0.030	0.025	0.016	0.61087	0.73329	0.17166
54927	0.031	0.027	0.017	0.67381	0.75078	0.18070
54928	0.031	0.026	0.017	0.65608	0.75272	0.18162
54929	0.030	0.027	0.017	0.67825	0.71601	0.18699
54930	0.029	0.028	0.017	0.67991	0.70296	0.18802
54931	0.028	0.029	0.017	0.71768	0.68945	0.19928
54932	0.030	0.033	0.018	0.81660	0.71963	0.21508
54933	0.030	0.031	0.018	0.75448	0.72995	0.19853
54934	0.032	0.034	0.019	0.84866	0.77144	0.23901
54935	0.030	0.031	0.018	0.78107	0.72504	0.21230
54936	0.029	0.030	0.018	0.75663	0.71398	0.19146
54937	0.028	0.030	0.016	0.74532	0.68956	0.18480
54938	0.028	0.029	0.016	0.73420	0.69780	0.17924

54939	0.030	0.031	0.016	0.76491	0.74753	0.20386
54940	0.028	0.028	0.016	0.69143	0.69150	0.17767
54941	0.028	0.029	0.016	0.71629	0.69116	0.19181
54942	0.029	0.030	0.016	0.74128	0.69991	0.20252
54943	0.030	0.031	0.016	0.76361	0.73403	0.20883
54944	0.031	0.031	0.016	0.77041	0.76840	0.23938
54945	0.034	0.033	0.018	0.82539	0.84944	0.28200
54946	0.033	0.031	0.017	0.76881	0.81725	0.24039
54947	0.033	0.032	0.017	0.79190	0.82464	0.24590
54948	0.031	0.029	0.016	0.72954	0.76528	0.20901
54949	0.031	0.028	0.016	0.69059	0.76745	0.19484
54950	0.030	0.028	0.015	0.69527	0.73284	0.18588
54951	0.028	0.025	0.015	0.62894	0.70422	0.17059
54952	0.029	0.026	0.015	0.65672	0.72961	0.16801
54953	0.029	0.026	0.015	0.64705	0.72416	0.16631
54954	0.030	0.025	0.015	0.63140	0.74088	0.16971
54955	0.031	0.026	0.015	0.67393	0.77274	0.17596
54956	0.031	0.026	0.015	0.67245	0.76976	0.17609
54957	0.031	0.025	0.015	0.63107	0.76531	0.16269
54958	0.032	0.027	0.016	0.67159	0.80042	0.17616
54959	0.033	0.027	0.016	0.68581	0.83381	0.18193
54960	0.034	0.027	0.016	0.69644	0.85081	0.18185
54961	0.033	0.025	0.017	0.64595	0.84628	0.17499
54962	0.035	0.027	0.017	0.68690	0.89306	0.19551
54963	0.036	0.027	0.018	0.69147	0.90799	0.19390
54964	0.035	0.025	0.018	0.62663	0.89708	0.18105
54965	0.036	0.028	0.019	0.71323	0.92376	0.19663
54966	0.037	0.029	0.019	0.72953	0.94794	0.20386
54967	0.037	0.026	0.020	0.66797	0.94666	0.20391
54968	0.040	0.029	0.021	0.76235	1.04154	0.24019
54969	0.041	0.029	0.022	0.75004	1.06887	0.23904
54970	0.042	0.026	0.022	0.67653	1.07634	0.22422
54971	0.042	0.027	0.023	0.69603	1.07767	0.22072
54972	0.043	0.027	0.023	0.69784	1.09728	0.21641
54973	0.044	0.026	0.023	0.66041	1.12551	0.21828
54974	0.044	0.026	0.024	0.64694	1.12018	0.21100
54975	0.047	0.028	0.025	0.68671	1.19052	0.22258
54976	0.047	0.027	0.025	0.67324	1.20377	0.21784
54977	0.048	0.026	0.026	0.64587	1.21119	0.22755

54978	0.048	0.027	0.027	0.67344	1.23157	0.24623
54979	0.052	0.031	0.028	0.77191	1.30731	0.30312
54980	0.051	0.030	0.029	0.74703	1.29887	0.35557
54981	0.055	0.036	0.031	0.91438	1.38904	0.50698
54982	0.076	0.041	0.045	1.06347	1.95238	0.75594
54983	0.073	0.036	0.042	0.93700	1.86355	0.57687
54984	0.069	0.037	0.040	0.93869	1.76259	0.50935
54985	0.065	0.034	0.038	0.83068	1.65795	0.46719
54986	0.062	0.033	0.035	0.83971	1.56026	0.43850
54987	0.059	0.034	0.033	0.86911	1.48757	0.38039
54988	0.055	0.031	0.031	0.79294	1.38634	0.33990
54989	0.052	0.030	0.029	0.75193	1.30505	0.34669
54990	0.048	0.030	0.028	0.74187	1.20965	0.31381
54991	0.047	0.030	0.026	0.74338	1.16790	0.31864
54992	0.044	0.029	0.025	0.72578	1.10737	0.33115
54993	0.043	0.029	0.024	0.72077	1.06681	0.34293
54994	0.041	0.031	0.023	0.75950	1.02278	0.34220
54995	0.040	0.030	0.023	0.75755	0.97790	0.34728
54996	0.037	0.032	0.022	0.77722	0.92685	0.32392
54997	0.036	0.030	0.021	0.74382	0.87456	0.31555
54998	0.034	0.031	0.020	0.78069	0.83342	0.26768
54999	0.032	0.032	0.020	0.78192	0.78261	0.24320
55000	0.034	0.033	0.021	0.83058	0.83293	0.25387
55001	0.037	0.036	0.022	0.90087	0.89225	0.27212
55002	0.041	0.038	0.024	0.94052	1.00237	0.32206
55003	0.046	0.041	0.025	1.02837	1.11296	0.42124
55004	0.054	0.046	0.043	1.21889	1.47342	1.96033
55005	0.029	0.033	0.020	0.84605	0.74493	0.21126
55006	0.028	0.031	0.019	0.78157	0.71448	0.19896
55007	0.031	0.031	0.019	0.79927	0.78430	0.21512
55008	0.024	0.031	0.018	0.77541	0.62646	0.19108
55009	0.025	0.028	0.017	0.72534	0.63385	0.18152
55010	0.024	0.028	0.016	0.72923	0.60655	0.17275
55011	0.024	0.029	0.016	0.73755	0.60043	0.18407
55012	0.022	0.029	0.015	0.72710	0.57506	0.18356
55013	0.025	0.029	0.015	0.75215	0.62928	0.19661
55014	0.025	0.028	0.015	0.72296	0.65011	0.20519
55015	0.026	0.030	0.015	0.78273	0.68427	0.23004
55016	0.025	0.030	0.015	0.75974	0.67701	0.23380

55017	0.026	0.032	0.016	0.81031	0.72247	0.25943
55018	0.031	0.033	0.017	0.85568	0.80536	0.31417
55019	0.032	0.034	0.019	0.87209	0.85784	0.36345
55020	0.036	0.037	0.021	0.90262	0.98448	0.37546
55021	0.036	0.038	0.022	0.95580	1.00606	0.41408
55022	0.036	0.037	0.023	0.87725	1.02473	0.39148
55023	0.038	0.036	0.024	0.84044	1.06239	0.37094
55024	0.041	0.037	0.025	0.87252	1.13526	0.37291
55025	0.040	0.037	0.026	0.85775	1.13912	0.36799
55026	0.041	0.040	0.028	0.93006	1.17222	0.41908
55027	0.044	0.042	0.030	0.93669	1.29019	0.45239
55028	0.047	0.042	0.032	0.97859	1.37949	0.49951
55029	0.049	0.043	0.033	0.99489	1.42218	0.52616
55030	0.050	0.044	0.035	0.98657	1.48016	0.59001
55031	0.052	0.046	0.038	1.06037	1.57500	0.66773
55032	0.055	0.047	0.040	1.06967	1.65583	0.74561
55033	0.055	0.049	0.042	1.14416	1.71017	0.85169
55034	0.058	0.052	0.045	1.30218	1.83193	1.09710
55035	0.060	0.056	0.048	1.51159	1.98818	1.56636
55036	0.069	0.057	0.052	1.54676	2.19046	1.67123
55037	0.064	0.051	0.047	1.27021	1.97934	1.23841
55038	0.062	0.049	0.044	1.15074	1.90407	1.06790
55039	0.059	0.047	0.042	1.00721	1.77064	0.91437
55040	0.056	0.047	0.040	1.08515	1.67721	0.80342
55041	0.052	0.044	0.037	0.95072	1.55891	0.67553
55042	0.051	0.041	0.035	0.90813	1.49532	0.59956
55043	0.050	0.039	0.033	0.89410	1.45944	0.50845
55044	0.047	0.037	0.030	0.83150	1.36827	0.45805
55045	0.044	0.036	0.029	0.84995	1.26343	0.43286
55046	0.042	0.035	0.027	0.81578	1.21131	0.39446
55047	0.042	0.034	0.025	0.83460	1.18441	0.37078
55048	0.038	0.032	0.024	0.80046	1.05132	0.37284
55049	0.036	0.032	0.022	0.79328	1.02007	0.33771
55050	0.033	0.031	0.021	0.81514	0.88906	0.30569
55051	0.029	0.028	0.019	0.74670	0.77999	0.28069
55052	0.029	0.029	0.019	0.75101	0.75754	0.27236
55053	0.028	0.028	0.018	0.73221	0.73488	0.25688
55054	0.028	0.028	0.018	0.72660	0.75406	0.25506
55055	0.027	0.028	0.018	0.72895	0.72149	0.25908

55056	0.029	0.030	0.018	0.78743	0.78607	0.27180
55057	0.028	0.033	0.019	0.83158	0.79679	0.30584
55058	0.028	0.033	0.020	0.80114	0.82606	0.33401
55059	0.031	0.034	0.021	0.83454	0.88818	0.35012
55060	0.035	0.034	0.023	0.82504	0.99372	0.38054
55061	0.037	0.036	0.024	0.86273	1.04644	0.42037
55062	0.034	0.036	0.025	0.81204	1.02112	0.40348
55063	0.037	0.037	0.026	0.84612	1.07973	0.40769
55064	0.039	0.040	0.028	0.95333	1.15605	0.42435
55065	0.040	0.045	0.030	1.08273	1.21047	0.51001
55066	0.028	0.035	0.023	0.87723	0.76783	0.27403
55067	0.025	0.033	0.021	0.80598	0.67650	0.24184
55068	0.029	0.031	0.021	0.79261	0.74517	0.24237
55069	0.029	0.031	0.020	0.78261	0.74985	0.24227
55070	0.028	0.031	0.019	0.77650	0.73778	0.22785
55071	0.026	0.030	0.018	0.74853	0.69603	0.21488
55072	0.028	0.031	0.018	0.77937	0.73031	0.21235
55073	0.027	0.030	0.017	0.73086	0.70670	0.20578
55074	0.026	0.029	0.016	0.72743	0.66830	0.19858
55075	0.026	0.029	0.016	0.73165	0.66111	0.20189
55076	0.026	0.029	0.016	0.73622	0.67031	0.20930
55077	0.026	0.030	0.015	0.76264	0.67235	0.21759
55078	0.028	0.032	0.016	0.80745	0.72141	0.23374
55079	0.029	0.031	0.016	0.79003	0.75042	0.24335
55080	0.029	0.030	0.016	0.75269	0.76056	0.23505
55081	0.029	0.031	0.017	0.77819	0.75717	0.22941
55082	0.032	0.030	0.018	0.76473	0.81784	0.22632
55083	0.032	0.030	0.018	0.75631	0.83925	0.22513
55084	0.034	0.031	0.019	0.76773	0.89504	0.23624
55085	0.033	0.031	0.020	0.74554	0.87283	0.22644
55086	0.034	0.033	0.021	0.78122	0.91156	0.23898
55087	0.033	0.033	0.022	0.78805	0.90713	0.23227
55088	0.035	0.034	0.023	0.78969	0.95531	0.24823
55089	0.037	0.034	0.024	0.79269	1.00536	0.27239
55090	0.038	0.034	0.026	0.78326	1.04002	0.29815
55091	0.039	0.037	0.027	0.83444	1.07689	0.34440
55092	0.042	0.040	0.029	0.93346	1.16367	0.41197
55093	0.041	0.040	0.031	0.91571	1.15319	0.46897
55094	0.044	0.041	0.033	0.94711	1.24942	0.56821

55095	0.046	0.042	0.035	0.98335	1.33813	0.68490
55096	0.050	0.046	0.038	1.15628	1.47790	0.89854
55097	0.054	0.049	0.042	1.29297	1.61178	1.15310

mean standard deviations of rotations

omega	1.0 [deg/1000]
phi	1.1 [deg/1000]
kappa	0.4 [deg/1000]

max standard deviations of rotations

omega	2.4 [deg/1000] at photo	53678
phi	2.7 [deg/1000] at photo	53050
kappa	2.6 [deg/1000] at photo	53391

mean standard deviations of translations

x	0.034 [meter]
y	0.034 [meter]
z	0.022 [meter]

max standard deviations of translations

x	0.107 [meter] at photo	53050
y	0.081 [meter] at photo	53577
z	0.092 [meter] at photo	53064

residuals horizontal control points in [meter]

control point ID	rx	ry
HV64_Sinos	0.029	-0.007
HV65_Sinos	-0.014	-0.006
HV66_Sinos	0.020	-0.007
HV67_Sinos	0.017	0.037
HV68_Sinos	-0.019	0.023
HV69_Sinos	-0.004	-0.013
HV70_Sinos	-0.015	0.013
HV71_Sinos	-0.013	-0.008
HV72_Sinos	-0.004	-0.019
HV73_Sinos	-0.020	-0.004
HV74_Sinos	-0.021	-0.009
HV75_Sinos	-0.008	0.003
HV76_Sinos	-0.001	-0.020
HV77_Sinos	-0.025	-0.008
HV78_Sinos	-0.002	0.005
HV79_Sinos	0.001	0.019
HV80_Sinos	-0.008	-0.015
HV81_Sinos	0.012	-0.042
HV82_Sinos	0.008	0.017
HV83_Sinos	0.001	0.015
HV84_Sinos	0.008	-0.022
HV86_Sinos	0.006	0.002
HV87_Sinos	0.012	0.024
HV88_Sinos	0.011	0.028
HV90_Sinos	0.019	0.003
HV91_Sinos	0.021	0.013
HV92_Sinos	-0.005	0.021
HV93_Sinos	0.002	0.032
HV94_Sinos	-0.027	-0.003
HV95_Sinos	0.019	0.017
HV96_Sinos	0.010	-0.018

HV97_Sinos	0.015	0.012
control point ID	rx	ry
HV98_Sinos	0.012	0.014
HV99_Sinos	-0.016	-0.003
HV100_Sinos	-0.031	-0.024
HV101_Sinos	0.006	-0.007
HV102_Sinos	0.025	0.022
HV104_Sinos	-0.006	0.010
HV105_Sinos	-0.003	-0.005
HV106_Sinos	0.007	-0.002
HV107_Sinos	0.009	0.001
HV108_Sinos	0.007	0.004
HV109_Sinos	-0.003	0.002
HV110_Sinos	0.009	-0.004
HV111_Sinos	0.018	-0.011
HV112_Sinos	0.014	0.002
HV113_Sinos	-0.024	0.008
HV114_Sinos	0.000	-0.001
HV115_Sinos	-0.002	0.008
HV116_Sinos	0.011	0.008
HV118_Sinos	-0.007	-0.010
HV119_Sinos	0.012	-0.006
HV120_Sinos	0.011	0.011
HV121_Sinos	0.002	-0.013
HV122_Sinos	0.015	-0.010
HV123_Sinos	0.005	-0.006
HV124_Sinos	0.028	-0.012
HV125_Sinos	0.021	-0.025
HV126_Sinos	0.004	-0.026
HV128_Sinos	0.026	-0.029
HV129_Sinos	0.024	-0.011
HV131_Sinos	-0.002	-0.009
HV132_Sinos	0.034	-0.027

HV133_Sinos	0.026	-0.020
HV134_Sinos	0.029	-0.016
HV136_Sinos	0.001	-0.032
HV137_Sinos	0.009	0.055
HV138_Sinos	-0.000	0.027
HV139_Sinos	-0.032	0.041
HV140_Sinos	0.011	0.001
HV141_Sinos	-0.030	-0.007
HV142_Sinos	0.000	-0.051
HV143_Sinos	-0.040	0.004
HV144_Sinos	0.003	0.001
HV146_Sinos	0.002	-0.021
HV147_Sinos	-0.014	-0.009
HV148_Sinos	0.003	-0.046
HV149_Sinos	-0.005	0.029
HV150_Sinos	-0.023	0.012
HV151_Sinos	-0.009	0.019
HV153_Sinos	-0.002	0.022
HV154_Sinos	-0.007	-0.004
HV155_Sinos	-0.012	0.028
HV156_Sinos	-0.017	0.019
HV157_Sinos	-0.030	0.022
HV158_Sinos	-0.020	0.021
HV159_Sinos	-0.004	0.024
HV160_Sinos	0.004	0.037
HV161_Sinos	-0.048	0.029
HV162_Sinos	-0.050	0.006
HV163_Sinos	-0.033	0.004
HV164_Sinos	-0.029	-0.015
HV165_Sinos	-0.021	-0.005
HV166_Sinos	-0.013	-0.005
HV167_Sinos	0.013	0.011
HV168_Sinos	-0.005	-0.034

HV169_Sinos	-0.003	0.004
HV170_Sinos	-0.003	-0.025
HV171_Sinos	-0.022	0.001
HV173_Sinos	-0.020	-0.013
HV174_Sinos	-0.006	-0.028
HV175_Sinos	-0.009	-0.002
HV176_Sinos	-0.016	0.013
HV177_Sinos	-0.034	0.010
HV178_Sinos	-0.014	-0.004
HV179_Sinos	0.013	-0.001
HV180_Sinos	0.031	-0.032
HV181_Sinos	0.039	-0.007
HV182_Sinos	0.083	-0.041
HV183_Sinos	0.046	-0.024
HV184_Sinos	-0.007	-0.002
HV185_Sinos	-0.020	0.024
HV186_Sinos	0.015	0.031
HV187_Sinos	0.002	0.010
HV188_Sinos	0.025	-0.009
HV137A_Sinos	0.012	0.019

residuals vertical control points in [meter]

control point ID	rz
HV64_Sinos	0.015
HV65_Sinos	0.030
HV66_Sinos	-0.007
HV67_Sinos	0.008
HV68_Sinos	-0.023

HV69_Sinos	0.053
HV70_Sinos	0.006
HV71_Sinos	0.056
HV72_Sinos	0.013
HV73_Sinos	0.010
HV74_Sinos	-0.008
HV75_Sinos	0.029
HV76_Sinos	0.051
HV77_Sinos	0.004
HV78_Sinos	-0.028
HV79_Sinos	-0.007
HV80_Sinos	0.005
HV81_Sinos	0.064
HV82_Sinos	-0.051
HV83_Sinos	-0.063
HV84_Sinos	-0.005
HV86_Sinos	0.016
HV87_Sinos	0.007
HV88_Sinos	0.016
HV90_Sinos	0.016
HV91_Sinos	-0.016
HV92_Sinos	-0.012
HV93_Sinos	0.015
HV94_Sinos	-0.042

control point ID rz

HV95_Sinos	0.011
HV96_Sinos	0.029
HV97_Sinos	-0.071
HV98_Sinos	-0.066
HV99_Sinos	-0.071
HV100_Sinos	0.040
HV101_Sinos	-0.068

HV102_Sinos	0.034
HV104_Sinos	-0.065
HV105_Sinos	-0.045
HV106_Sinos	-0.033
HV107_Sinos	0.042
HV108_Sinos	0.033
HV109_Sinos	-0.027
HV110_Sinos	0.056
HV111_Sinos	0.012
HV112_Sinos	0.055
HV113_Sinos	-0.023
HV114_Sinos	0.080
HV115_Sinos	0.021
HV116_Sinos	0.071
HV118_Sinos	-0.089
HV119_Sinos	-0.043
HV120_Sinos	0.085
HV121_Sinos	0.035
HV122_Sinos	0.004
HV123_Sinos	0.054
HV124_Sinos	-0.041
HV125_Sinos	0.082
HV126_Sinos	0.008
HV128_Sinos	-0.011
HV129_Sinos	0.045
HV131_Sinos	-0.004
HV132_Sinos	0.020
HV133_Sinos	0.047
HV134_Sinos	-0.013
HV136_Sinos	0.022
HV137_Sinos	-0.017
HV138_Sinos	0.049
HV139_Sinos	-0.026

HV140_Sinos	-0.049
HV141_Sinos	-0.014
HV142_Sinos	0.054
HV143_Sinos	-0.062
HV144_Sinos	0.032
HV146_Sinos	0.083
HV147_Sinos	-0.051
HV148_Sinos	0.070
HV149_Sinos	0.030
HV150_Sinos	-0.062
HV151_Sinos	-0.093
HV153_Sinos	-0.014
HV154_Sinos	-0.028
HV155_Sinos	-0.050
HV156_Sinos	0.015
HV157_Sinos	-0.077
HV158_Sinos	-0.071
HV159_Sinos	-0.014
HV160_Sinos	-0.034

control point ID rz

HV161_Sinos	-0.007
HV162_Sinos	-0.053
HV163_Sinos	-0.014
HV164_Sinos	0.017
HV165_Sinos	-0.040
HV166_Sinos	-0.050
HV167_Sinos	0.059
HV168_Sinos	-0.035
HV169_Sinos	0.076
HV170_Sinos	0.014
HV171_Sinos	-0.023
HV173_Sinos	0.052

HV174_Sinos	-0.021
HV175_Sinos	0.057
HV176_Sinos	0.066
HV177_Sinos	0.045
HV178_Sinos	0.037
HV179_Sinos	0.039
HV180_Sinos	0.038
HV181_Sinos	-0.015
HV182_Sinos	-0.037
HV183_Sinos	-0.044
HV184_Sinos	-0.031
HV185_Sinos	-0.048
HV186_Sinos	-0.078
HV187_Sinos	-0.034
HV188_Sinos	-0.027
HV137A_Sinos	0.018

residuals GNSS observations in [meter]

photo ID	rx	ry	rz
----------	----	----	----

GNSS drift parameter for profile 1

constant part in [meter]	X	2.309	Y	-0.421	Z	5.551
--------------------------	---	-------	---	--------	---	-------

linear part in [meter]	X	0.218	Y	-0.060	Z	0.008
------------------------	---	-------	---	--------	---	-------

53050	0.003	-0.006	-0.073
53051	0.014	0.027	-0.064
53052	0.028	0.002	-0.036
53053	0.009	0.059	0.053

53054	0.012	0.012	0.068
53055	-0.020	-0.034	0.047
53056	-0.042	-0.072	0.041
53057	0.001	-0.009	0.002
53058	0.010	-0.039	0.015
53059	-0.062	-0.013	0.011
53060	-0.032	0.040	0.037
53061	0.004	0.007	-0.001
53062	0.050	-0.002	0.001
53063	-0.001	-0.009	-0.021
53064	0.027	0.035	-0.081

GNSS drift parameter for profile 2

constant part in [meter] X -1.581 Y -1.285 Z 5.186

linear part in [meter] X -0.009 Y -0.012 Z -0.015

53466	0.047	0.013	-0.033
53467	0.013	-0.059	-0.029
53468	-0.024	0.029	-0.013
53469	0.081	-0.020	-0.093
53470	0.045	0.020	-0.006
53471	0.049	0.052	-0.014
53472	-0.020	-0.040	-0.008
53473	-0.079	0.052	0.018
53474	-0.022	0.032	0.037
53475	-0.029	0.027	0.092
53476	0.006	0.040	0.075
53477	0.039	-0.003	0.061
53478	0.062	-0.020	0.056
53479	0.045	-0.074	0.014

53480	0.007	-0.029	-0.002
53481	0.006	-0.004	-0.047
53482	-0.053	-0.002	-0.015
53483	0.043	-0.034	-0.007
53484	-0.082	-0.042	-0.050
53485	-0.067	-0.029	-0.057
53486	-0.128	-0.037	-0.016
53487	-0.034	-0.000	-0.039
53488	-0.041	-0.019	-0.009
53489	-0.062	0.013	0.017
53490	-0.130	0.092	0.019
53491	-0.023	0.108	0.087
53492	0.020	-0.038	0.035
53493	-0.027	-0.031	0.014
53494	0.087	-0.055	-0.011
53495	0.008	-0.059	0.002
53496	0.071	-0.079	-0.012
53497	0.049	-0.048	0.039
53498	-0.005	0.140	-0.134
53499	-0.015	0.131	-0.040
53500	-0.000	0.071	-0.003
53501	-0.035	0.007	0.000
53502	0.097	-0.053	0.060
53503	0.017	0.049	0.026
53504	0.076	-0.009	0.043
53505	0.055	0.004	0.044
53506	0.065	0.012	-0.041
53507	0.008	-0.077	0.015
53508	0.009	-0.062	-0.036
53509	-0.002	0.033	-0.011
53510	-0.017	-0.007	-0.019
53511	0.001	0.006	-0.006
53512	-0.046	0.006	-0.004

53513	-0.065	-0.006	0.001
-------	--------	--------	-------

GNSS drift parameter for profile 3

constant part in [meter]	X	1.542	Y	1.646	Z	5.251
--------------------------	---	-------	---	-------	---	-------

linear part in [meter]	X	-0.001	Y	-0.019	Z	0.015
------------------------	---	--------	---	--------	---	-------

53514	-0.022	0.053	0.041
-------	--------	-------	-------

53515	-0.039	0.036	-0.022
-------	--------	-------	--------

53516	-0.045	-0.017	-0.009
-------	--------	--------	--------

53517	0.063	-0.025	0.047
-------	-------	--------	-------

53518	0.036	-0.007	0.015
-------	-------	--------	-------

53519	-0.004	-0.024	0.004
-------	--------	--------	-------

53520	-0.006	-0.041	0.010
-------	--------	--------	-------

53521	-0.003	-0.040	-0.006
-------	--------	--------	--------

53522	-0.043	-0.010	0.007
-------	--------	--------	-------

53523	-0.031	-0.044	-0.035
-------	--------	--------	--------

53524	-0.061	-0.035	-0.035
-------	--------	--------	--------

53525	-0.016	0.060	-0.005
-------	--------	-------	--------

53526	-0.074	0.003	-0.005
-------	--------	-------	--------

53527	-0.001	0.011	0.071
-------	--------	-------	-------

53528	-0.032	0.031	0.054
-------	--------	-------	-------

53529	0.008	0.067	0.041
-------	-------	-------	-------

53530	-0.015	0.006	-0.018
-------	--------	-------	--------

53531	0.020	0.065	-0.005
-------	-------	-------	--------

53532	-0.034	0.052	-0.037
-------	--------	-------	--------

53533	0.013	0.001	-0.056
-------	-------	-------	--------

53534	0.034	-0.067	-0.013
53535	-0.024	-0.085	-0.028
53536	0.077	-0.126	-0.006
53537	0.037	-0.110	-0.060
53538	-0.019	0.015	0.052
53539	-0.046	0.097	-0.002
53540	0.027	0.159	-0.057
53541	0.090	0.066	-0.009
53542	0.044	-0.024	-0.027
53543	0.078	-0.009	0.036
53544	-0.002	0.011	-0.027
53545	0.047	-0.036	-0.034
53546	0.063	-0.005	0.002
53547	0.080	-0.087	0.025
53548	0.012	-0.067	0.012
53549	0.034	0.118	0.047
53550	0.081	0.012	0.023
53551	0.025	-0.045	0.004
53552	0.031	-0.035	0.043
53553	-0.033	-0.061	0.006
53554	0.025	0.006	-0.007
53555	-0.057	0.101	0.043
53556	-0.053	0.077	0.002
53557	-0.031	0.035	0.004
53558	0.008	0.013	-0.023
53559	-0.021	0.078	0.008
53560	0.009	-0.023	-0.014
53561	-0.036	-0.033	-0.045
53562	-0.110	0.012	-0.070
53563	-0.025	-0.022	0.014
53564	-0.079	0.001	0.017
53565	-0.012	-0.014	-0.073
53566	0.028	-0.044	-0.001

53567	-0.009	-0.045	-0.020
53568	0.048	-0.040	0.009
53569	0.002	-0.034	-0.010
53570	0.025	-0.001	-0.028
53571	-0.020	0.038	0.053
53572	-0.030	-0.025	-0.025
53573	0.031	0.018	0.020
53574	-0.039	0.027	0.029
53575	0.026	0.013	0.060
53576	-0.027	-0.004	0.013

GNSS drift parameter for profile 4

constant part in [meter] X -1.555 Y -1.071 Z 4.865

linear part in [meter] X 0.001 Y -0.021 Z -0.007

53577	-0.003	-0.010	-0.047
53578	0.025	-0.021	-0.015
53579	-0.010	0.001	0.040
53580	-0.003	0.019	0.003
53581	-0.007	0.015	0.031
53582	0.021	0.044	0.029
53583	0.024	0.015	0.023
53584	-0.022	0.003	0.029
53585	0.028	0.024	-0.009
53586	-0.004	-0.072	-0.001
53587	-0.017	-0.033	0.009
53588	0.030	0.020	-0.036
53589	0.027	-0.052	-0.028
53590	-0.040	0.003	-0.041
53591	0.023	-0.030	-0.062
53592	-0.022	0.030	-0.017
53593	-0.004	-0.010	-0.028
53594	-0.005	-0.025	0.046

53595	-0.001	-0.037	0.008
53596	-0.049	0.071	0.037
53597	0.011	0.067	0.044
53598	0.008	0.027	0.020
53599	0.000	-0.001	-0.011
53600	-0.007	-0.058	0.029
53601	-0.034	-0.031	0.004
53602	-0.023	-0.027	0.009
53603	0.017	0.036	0.002
53604	-0.045	0.039	-0.021
53605	-0.002	0.034	-0.021
53606	-0.050	-0.101	0.015
53607	0.003	-0.025	-0.022
53608	-0.025	0.007	0.006
53609	-0.082	-0.079	-0.042
53610	0.030	-0.033	-0.032
53611	0.078	0.027	-0.028
53612	0.040	0.053	-0.011
53613	0.039	0.096	-0.007
53614	-0.018	-0.029	0.029
53615	-0.020	-0.003	0.033
53616	0.095	-0.005	0.040
53617	0.054	-0.017	-0.043
53618	0.022	0.070	-0.019
53619	-0.049	0.010	-0.023
53620	0.004	-0.026	0.008
53621	0.045	0.041	-0.041
53622	-0.013	0.057	-0.037
53623	0.027	0.082	0.000
53624	-0.034	0.009	-0.001
53625	-0.023	-0.020	0.069
53626	-0.022	-0.004	0.022
53627	-0.027	0.022	0.055

53628	-0.016	0.009	0.038
53629	0.001	-0.019	0.035
53630	0.016	-0.030	0.033
53631	-0.033	-0.009	0.017
53632	0.072	-0.066	-0.048
53633	0.040	-0.068	-0.002
53634	0.017	-0.044	-0.015
53635	-0.065	0.008	0.044
53636	0.010	-0.039	-0.003
53637	-0.030	0.037	0.007
53638	0.008	0.026	-0.037
53639	0.002	0.004	-0.059
53640	-0.001	-0.006	-0.002
53641	-0.012	0.024	-0.008

GNSS drift parameter for profile 5

constant part in [meter] X 1.549 Y 1.955 Z 4.786

linear part in [meter] X -0.023 Y 0.019 Z -0.007

53642	0.071	0.016	0.085
53643	-0.004	0.003	0.028
53644	0.009	-0.016	-0.002
53645	-0.089	0.060	-0.029
53646	-0.012	-0.008	0.002
53647	-0.051	0.066	-0.036
53648	-0.004	0.006	0.006
53649	0.011	-0.032	-0.049
53650	0.013	0.025	-0.033
53651	-0.010	-0.020	-0.041
53652	-0.030	-0.067	-0.050
53653	0.004	-0.036	-0.021
53654	-0.019	-0.006	-0.007
53655	0.018	-0.059	0.031

53656	0.019	-0.040	0.037
53657	-0.011	-0.009	-0.017
53658	0.075	0.031	0.060
53659	0.054	0.023	0.007
53660	-0.006	0.042	-0.016
53661	0.076	-0.023	0.030
53662	-0.044	-0.034	-0.004
53663	0.002	0.050	-0.020
53664	-0.034	-0.028	0.004
53665	-0.007	0.005	0.013
53666	0.087	0.022	0.006
53667	-0.035	0.031	-0.003
53668	-0.001	-0.027	-0.017
53669	-0.014	-0.020	0.046
53670	0.006	0.002	0.052
53671	0.011	0.012	-0.006
53672	0.014	0.026	-0.010
53673	-0.067	0.031	0.011
53674	-0.058	0.016	0.031
53675	-0.105	-0.007	-0.015
53676	0.016	-0.010	-0.024
53677	0.079	-0.019	-0.033
53678	0.036	-0.006	-0.018

GNSS drift parameter for profile 6

constant part in [meter] X 1.643 Y -1.130 Z 5.630

linear part in [meter] X -0.004 Y -0.026 Z -0.006

54569	0.044	0.022	-0.091
54570	-0.004	0.038	-0.107

54571	0.037	0.061	-0.075
54572	0.002	0.026	-0.047
54573	0.051	0.032	-0.079
54574	0.055	0.041	-0.032
54575	0.035	-0.005	0.027
54576	0.035	-0.009	0.028
54577	0.047	-0.079	0.047
54578	0.004	0.009	0.019
54579	0.007	0.026	0.009
54580	0.024	-0.039	0.010
54581	-0.058	-0.003	-0.019
54582	0.052	-0.092	0.021
54583	-0.019	-0.056	-0.058
54584	-0.056	-0.073	0.058
54585	-0.014	-0.047	0.018
54586	-0.029	-0.041	-0.028
54587	0.001	-0.046	0.056
54588	-0.034	0.010	-0.012
54589	-0.098	-0.085	0.008
54590	-0.069	-0.045	0.014
54591	-0.025	-0.073	0.026
54592	0.040	-0.015	0.125
54593	-0.006	-0.018	0.059
54594	-0.085	0.070	0.058
54595	-0.047	0.012	0.002
54596	-0.001	0.037	0.040
54597	-0.061	0.056	0.013
54598	-0.050	0.024	-0.023
54599	0.031	-0.005	0.016
54600	0.039	0.057	-0.013
54601	-0.011	0.021	0.052
54602	0.050	0.019	0.034
54603	0.015	0.068	0.063

54604	-0.102	0.069	0.024
54605	0.011	0.015	0.025
54606	-0.046	0.040	0.041
54607	0.012	0.079	0.041
54608	-0.031	0.081	0.041
54609	-0.011	0.004	-0.034
54610	0.066	-0.036	0.035
54611	-0.045	0.013	0.005
54612	0.035	0.049	-0.031
54613	-0.012	0.015	-0.007
54614	0.068	-0.001	-0.068
54615	0.029	0.005	-0.006
54616	0.015	-0.012	-0.071
54617	-0.029	0.004	0.005
54618	-0.043	-0.010	-0.028
54619	0.037	0.024	0.001
54620	0.054	-0.014	0.013
54621	0.049	0.004	-0.042
54622	0.040	-0.025	0.003
54623	-0.009	-0.064	0.010
54624	0.074	-0.015	-0.048
54625	0.020	-0.025	-0.029
54626	-0.019	-0.023	-0.029
54627	-0.065	-0.074	-0.068

GNSS drift parameter for profile 7

constant part in [meter] X -1.485 Y 1.964 Z 5.699

linear part in [meter] X 0.008 Y 0.010 Z 0.012

54628	0.020	-0.043	0.023
54629	-0.066	-0.005	-0.023
54630	-0.039	0.010	-0.056
54631	0.055	0.040	-0.014

54632	0.123	0.007	-0.015
54633	0.042	0.024	0.031
54634	-0.019	0.009	0.034
54635	-0.025	-0.028	0.091
54636	0.002	0.033	0.095
54637	0.058	-0.036	0.046
54638	-0.021	-0.036	0.068
54639	0.024	-0.032	-0.026
54640	-0.001	-0.025	0.018
54641	0.036	-0.025	-0.029
54642	0.016	-0.007	-0.004
54643	-0.018	0.058	0.003
54644	-0.038	-0.022	-0.003
54645	0.031	0.006	-0.067
54646	-0.057	0.085	0.014
54647	-0.058	0.051	-0.032
54648	-0.023	0.071	0.023
54649	0.004	0.000	-0.016
54650	0.013	-0.017	0.026
54651	-0.017	-0.001	-0.045
54652	-0.025	0.006	-0.014
54653	0.031	-0.007	-0.025
54654	-0.065	0.012	0.010
54655	-0.016	0.006	-0.055
54656	0.007	-0.091	-0.026
54657	0.011	0.013	-0.044
54658	-0.027	-0.024	-0.050
54659	-0.015	-0.055	-0.044
54660	-0.004	0.069	-0.036
54661	0.013	-0.011	-0.035
54662	0.044	-0.007	-0.043
54663	-0.031	0.010	-0.013
54664	-0.043	-0.045	-0.035

54665	-0.025	0.012	-0.011
54666	-0.042	-0.087	0.012
54667	-0.020	-0.017	-0.017
54668	-0.008	0.020	0.048
54669	-0.011	0.006	-0.008
54670	-0.034	0.038	0.069
54671	0.013	-0.027	-0.012
54672	0.006	0.017	0.013
54673	0.012	0.010	0.004
54674	0.011	-0.035	-0.010
54675	0.027	-0.005	0.071
54676	0.076	-0.005	0.032
54677	0.062	0.024	0.028
54678	0.013	0.054	0.048

GNSS drift parameter for profile 8

constant part in [meter]	X	1.714	Y	-1.170	Z	5.719
linear part in [meter]	X	0.000	Y	-0.014	Z	-0.004

54679	0.104	0.108	-0.028
54680	0.110	-0.019	0.049
54681	0.076	0.027	0.038
54682	0.002	0.048	-0.034
54683	0.067	-0.008	0.031
54684	0.003	0.036	0.024
54685	-0.012	-0.003	0.002
54686	-0.027	0.021	-0.048
54687	-0.067	-0.109	0.025
54688	0.036	-0.039	0.040
54689	-0.014	-0.052	0.030
54690	0.021	-0.017	0.044

54691	-0.035	-0.001	0.005
54692	-0.040	-0.096	-0.019
54693	0.053	0.014	-0.018
54694	-0.057	0.004	-0.024
54695	-0.061	0.027	-0.065
54696	0.045	-0.020	-0.001
54697	-0.033	0.039	-0.032
54698	-0.069	0.033	-0.116
54699	-0.046	-0.017	-0.010
54700	-0.079	-0.052	-0.057
54701	-0.045	-0.072	0.031
54702	-0.031	-0.067	0.053
54703	-0.032	0.010	-0.032
54704	-0.052	-0.043	-0.006
54705	-0.001	0.078	0.046
54706	-0.019	0.087	0.006
54707	-0.051	0.085	-0.043
54708	0.038	0.041	0.031
54709	0.029	0.028	0.011
54710	0.004	-0.015	0.001
54711	-0.025	-0.014	-0.014
54712	0.004	-0.041	-0.002
54713	-0.047	-0.091	0.008
54714	0.045	0.033	-0.006
54715	-0.005	-0.038	0.003
54716	-0.016	-0.004	-0.004
54717	0.039	0.033	0.078
54718	0.011	0.010	0.012
54719	-0.010	0.034	-0.034
54720	0.021	-0.028	0.046
54721	0.011	0.054	0.020
54722	0.019	-0.009	0.012
54723	-0.014	-0.005	0.017

54724	0.009	0.035	-0.009
54725	0.040	0.032	-0.019
54726	-0.001	-0.027	-0.034
54727	0.034	0.056	-0.015
54728	0.014	0.013	0.001
54729	0.011	-0.009	0.044
54730	-0.062	0.079	0.006
54731	0.095	-0.116	-0.031
54732	0.013	-0.054	-0.010

GNSS drift parameter for profile 9

constant part in [meter]	X	-1.441	Y	2.053	Z	5.695
linear part in [meter]	X	-0.000	Y	0.017	Z	0.016

54733	0.053	-0.069	-0.113
54734	0.014	0.083	-0.039
54735	0.022	0.019	-0.053
54736	-0.047	-0.007	0.039
54737	0.012	-0.011	0.031
54738	0.048	-0.014	0.009
54739	0.001	0.000	0.050
54740	0.004	-0.022	0.046
54741	0.051	-0.044	0.009
54742	-0.067	0.033	0.035
54743	0.049	-0.012	-0.000
54744	-0.049	0.025	0.003
54745	-0.019	0.049	0.021
54746	-0.036	-0.033	0.031
54747	-0.008	0.051	0.018
54748	0.018	-0.022	0.043
54749	0.006	-0.031	0.014

54750	-0.005	-0.007	0.038
54751	-0.003	0.024	0.033
54752	-0.026	-0.003	-0.022
54753	0.010	0.026	-0.057
54754	-0.031	-0.022	-0.002
54755	0.028	0.021	-0.068
54756	-0.067	0.065	-0.011
54757	-0.016	-0.012	-0.025
54758	0.022	-0.007	-0.053
54759	-0.006	0.083	0.043
54760	0.051	-0.008	-0.016
54761	0.043	-0.034	0.016
54762	-0.048	-0.005	0.037
54763	-0.023	0.014	-0.029
54764	-0.030	0.001	0.029
54765	0.001	-0.008	-0.027
54766	0.012	-0.023	-0.005
54767	-0.000	-0.022	-0.027
54768	0.003	-0.016	-0.026
54769	-0.007	-0.031	0.001
54770	-0.035	-0.056	-0.022
54771	0.002	-0.023	-0.013
54772	0.013	-0.047	-0.002
54773	-0.017	-0.027	-0.012
54774	0.006	0.012	0.014
54775	-0.024	-0.053	0.007
54776	0.042	-0.025	-0.021
54777	-0.009	0.047	0.024
54778	-0.014	-0.002	0.006
54779	-0.013	-0.003	-0.002
54780	-0.005	0.009	0.038
54781	0.009	0.012	0.017
54782	-0.001	0.021	0.006

54783	0.010	0.061	0.016
54784	0.049	0.045	-0.007
54785	0.027	-0.006	-0.019

GNSS drift parameter for profile 10

constant part in [meter] X 1.845 Y -1.218 Z 5.752

linear part in [meter] X -0.006 Y -0.019 Z -0.013

54786	0.064	0.013	0.041
54787	0.066	0.047	-0.009
54788	0.088	0.045	0.009
54789	0.023	0.088	0.015
54790	0.083	0.033	0.088
54791	0.053	0.066	0.022
54792	0.002	0.044	0.029
54793	-0.029	-0.048	0.001
54794	-0.015	-0.025	-0.018
54795	-0.023	0.019	0.003
54796	-0.071	-0.018	0.042
54797	0.010	-0.079	0.105
54798	-0.004	-0.097	0.080
54799	-0.036	-0.024	0.011
54800	-0.027	-0.023	0.001
54801	-0.021	-0.021	0.004
54802	0.005	0.019	-0.045
54803	-0.047	-0.032	-0.031
54804	-0.022	-0.021	-0.059
54805	0.010	-0.012	-0.046
54806	-0.018	-0.020	-0.076
54807	0.001	-0.039	-0.043

54808	-0.050	-0.067	-0.057
54809	-0.013	0.015	-0.049
54810	-0.028	-0.049	-0.036
54811	-0.031	0.051	-0.057
54812	-0.002	-0.048	-0.049
54813	-0.039	-0.103	-0.069
54814	-0.012	0.000	-0.040
54815	-0.027	0.042	-0.037
54816	-0.045	0.017	-0.009
54817	0.036	0.027	-0.003
54818	-0.002	0.005	-0.032
54819	0.014	-0.015	-0.005
54820	-0.036	-0.014	-0.003
54821	-0.021	0.065	-0.004
54822	0.016	0.001	0.030
54823	-0.026	0.063	-0.010
54824	-0.005	-0.033	0.034
54825	-0.008	0.080	0.046
54826	0.025	0.032	0.063
54827	-0.041	0.004	-0.047
54828	-0.008	0.017	0.046
54829	0.050	0.045	0.037
54830	-0.050	0.071	0.013
54831	-0.022	-0.026	0.031
54832	0.009	-0.035	0.035
54833	0.029	-0.019	0.038
54834	0.039	0.046	0.008
54835	-0.051	-0.013	0.002
54836	0.057	-0.021	-0.003
54837	-0.012	0.007	0.033
54838	0.005	0.003	-0.025
54839	0.036	0.019	0.003
54840	-0.002	-0.011	-0.024

54841	0.127	-0.068	0.020
-------	-------	--------	-------

GNSS drift parameter for profile 11

constant part in [meter]	X	-1.465	Y	2.019	Z	5.650
--------------------------	---	--------	---	-------	---	-------

linear part in [meter]	X	0.007	Y	0.021	Z	0.023
------------------------	---	-------	---	-------	---	-------

54842	0.010	0.080	-0.060
-------	-------	-------	--------

54843	0.005	-0.005	-0.056
-------	-------	--------	--------

54844	0.061	0.097	0.009
-------	-------	-------	-------

54845	0.072	0.024	-0.010
-------	-------	-------	--------

54846	-0.027	-0.022	0.039
-------	--------	--------	-------

54847	-0.001	0.060	0.032
-------	--------	-------	-------

54848	-0.037	-0.029	0.018
-------	--------	--------	-------

54849	0.005	-0.037	0.072
-------	-------	--------	-------

54850	0.013	0.010	0.047
-------	-------	-------	-------

54851	0.010	-0.007	0.088
-------	-------	--------	-------

54852	-0.008	-0.067	0.048
-------	--------	--------	-------

54853	0.014	-0.049	0.054
-------	-------	--------	-------

54854	-0.048	-0.073	0.060
-------	--------	--------	-------

54855	-0.003	-0.041	-0.064
-------	--------	--------	--------

54856	-0.069	0.004	-0.078
-------	--------	-------	--------

54857	-0.003	0.021	-0.021
-------	--------	-------	--------

54858	0.063	-0.037	-0.033
-------	-------	--------	--------

54859	-0.014	0.004	-0.016
-------	--------	-------	--------

54860	0.006	-0.031	-0.014
-------	-------	--------	--------

54861	-0.034	0.020	-0.007
-------	--------	-------	--------

54862	0.013	-0.046	-0.040
-------	-------	--------	--------

54863	-0.014	0.032	0.033
-------	--------	-------	-------

54864	-0.022	-0.051	-0.022
-------	--------	--------	--------

54865	0.021	-0.020	0.013
-------	-------	--------	-------

54866	-0.002	-0.057	-0.009
-------	--------	--------	--------

54867	-0.014	0.001	-0.016
-------	--------	-------	--------

54868	-0.021	0.099	-0.032
-------	--------	-------	--------

54869	0.025	0.004	-0.063
54870	-0.014	0.043	-0.015
54871	-0.033	-0.061	-0.020
54872	-0.025	-0.003	-0.012
54873	-0.050	0.059	0.086
54874	0.051	0.089	-0.011
54875	0.009	0.009	-0.018
54876	-0.002	-0.029	-0.035
54877	-0.012	0.004	-0.063
54878	-0.006	-0.012	-0.004
54879	0.017	-0.006	-0.059
54880	-0.015	0.020	-0.016
54881	0.002	0.024	0.008
54882	-0.018	0.017	-0.015
54883	0.003	0.024	0.033
54884	0.004	-0.005	0.062
54885	-0.006	-0.030	-0.051
54886	0.008	0.014	0.044
54887	0.033	-0.007	0.003
54888	0.054	-0.023	0.007
54889	0.005	0.010	0.027
54890	-0.041	-0.008	0.023
54891	0.022	-0.032	0.038
54892	0.015	0.020	0.016

GNSS drift parameter for profile 12

constant part in [meter] X -1.452 Y 2.356 Z 5.101

linear part in [meter] X -0.095 Y 0.053 Z 0.026

53065	0.113	0.072	-0.082
53066	-0.007	0.090	0.015
53067	-0.050	-0.012	0.055
53068	-0.050	-0.020	0.030
53069	-0.064	-0.074	0.028
53070	0.012	-0.024	-0.022
53071	0.010	-0.013	-0.046
53072	0.034	-0.033	-0.031
53073	0.073	-0.066	-0.050
53074	-0.044	0.034	0.041
53075	-0.056	-0.023	0.063
53076	0.006	0.026	0.011
53077	-0.007	0.010	0.036
53078	-0.026	-0.037	0.013
53079	-0.035	-0.032	0.001
53080	0.042	0.021	-0.028
53081	0.019	0.053	-0.030
53082	0.048	0.004	0.040
53083	-0.014	-0.034	0.003
53084	-0.006	0.055	-0.048

GNSS drift parameter for profile 13

constant part in [meter] X 1.777 Y -1.213 Z 5.502

linear part in [meter] X -0.017 Y -0.023 Z -0.012

54893	0.009	0.016	0.007
54894	0.027	-0.011	0.048
54895	-0.024	-0.010	0.006
54896	0.003	0.006	-0.003
54897	-0.031	0.022	-0.018
54898	-0.003	-0.023	0.004
54899	-0.019	0.020	0.011

54900	-0.002	0.013	0.015
54901	0.021	0.012	-0.005
54902	-0.005	0.055	-0.062
54903	0.004	-0.050	0.021
54904	-0.006	-0.012	-0.012
54905	-0.025	-0.030	0.009
54906	0.031	-0.045	-0.006
54907	-0.002	-0.062	0.024
54908	0.035	0.001	-0.010
54909	0.008	0.012	0.007
54910	0.051	0.038	0.005
54911	0.007	0.027	-0.023
54912	-0.014	-0.035	0.008
54913	0.052	0.084	0.023
54914	0.001	0.071	-0.064
54915	-0.013	-0.026	0.010
54916	-0.021	0.029	-0.027
54917	0.046	-0.002	0.014
54918	0.037	0.082	-0.025
54919	-0.024	-0.034	-0.032
54920	-0.033	-0.038	-0.032
54921	-0.041	-0.076	-0.012
54922	-0.014	-0.111	0.015
54923	0.025	0.045	0.022
54924	0.000	-0.004	0.025
54925	-0.007	0.011	0.026
54926	-0.007	0.002	0.037
54927	0.004	0.030	-0.001
54928	-0.057	-0.040	-0.018
54929	-0.112	-0.036	-0.010
54930	-0.099	-0.034	-0.044
54931	-0.103	-0.009	-0.011
54932	-0.028	-0.016	0.006

54933	0.041	0.061	0.087
54934	0.087	0.065	0.004
54935	0.078	-0.101	-0.005
54936	0.119	0.102	-0.018

GNSS drift parameter for profile 14

constant part in [meter] X -1.423 Y 2.015 Z 5.596

linear part in [meter] X 0.019 Y 0.022 Z 0.016

54937	-0.013	0.058	-0.044
54938	0.009	-0.038	-0.005
54939	-0.003	-0.047	0.003
54940	0.004	0.029	-0.007
54941	0.015	-0.061	0.002
54942	0.051	-0.047	-0.003
54943	0.022	0.036	0.033
54944	0.001	-0.037	0.056
54945	0.035	-0.018	-0.017
54946	-0.033	-0.009	-0.031
54947	0.005	-0.027	-0.063
54948	-0.081	0.044	-0.040
54949	0.053	0.032	0.020
54950	-0.034	0.034	0.002
54951	-0.005	-0.038	-0.033
54952	-0.031	0.058	0.006
54953	-0.049	0.025	0.007
54954	0.024	0.009	0.011
54955	-0.011	0.018	0.024
54956	-0.046	0.022	0.030
54957	-0.025	0.007	0.080
54958	-0.004	-0.042	-0.000
54959	0.044	-0.001	-0.015
54960	-0.007	0.039	0.033

54961	0.032	-0.063	0.012
54962	-0.016	-0.023	0.036
54963	0.054	-0.001	0.046
54964	0.041	-0.006	0.023
54965	-0.038	-0.038	-0.016
54966	0.015	0.030	0.006
54967	0.059	-0.014	-0.005
54968	-0.001	0.047	-0.037
54969	-0.039	0.069	-0.025
54970	0.002	0.035	-0.049
54971	-0.060	0.066	0.004
54972	-0.049	0.037	-0.004
54973	0.020	0.006	0.006
54974	-0.007	-0.010	-0.026
54975	0.023	-0.049	-0.028
54976	0.047	0.006	-0.030
54977	0.008	-0.033	0.023
54978	0.018	-0.060	-0.008
54979	0.021	-0.004	0.042
54980	-0.001	-0.069	-0.024
54981	-0.049	0.028	0.006

GNSS drift parameter for profile 15

constant part in [meter] X 1.763 Y -1.255 Z 5.323

linear part in [meter] X -0.039 Y 0.015 Z -0.006

54982	0.028	-0.022	0.084
54983	-0.008	-0.019	0.073
54984	0.008	-0.035	0.009
54985	0.019	-0.027	0.016
54986	0.004	0.014	-0.018
54987	0.000	-0.052	0.007
54988	-0.034	0.023	-0.031

54989	0.006	0.033	0.022
54990	0.007	0.076	-0.069
54991	0.019	-0.000	-0.070
54992	-0.005	0.026	-0.005
54993	-0.033	0.018	0.003
54994	-0.021	0.001	-0.030
54995	0.033	0.018	-0.031
54996	-0.014	-0.016	-0.042
54997	-0.035	0.044	-0.060
54998	0.017	0.006	-0.064
54999	-0.037	-0.025	-0.040
55000	-0.050	-0.009	0.038
55001	-0.018	0.009	0.029
55002	0.006	0.026	0.066
55003	0.104	-0.040	0.039
55004	0.004	-0.049	0.075

GNSS drift parameter for profile 16

constant part in [meter] X 0.715 Y -1.888 Z 5.198

linear part in [meter] X 0.009 Y -0.001 Z -0.039

55005	0.031	0.004	-0.010
55006	0.025	0.066	-0.032
55007	-0.021	-0.004	-0.014
55008	0.001	-0.004	-0.023
55009	0.017	0.020	-0.004
55010	-0.034	-0.019	0.018
55011	-0.021	-0.003	0.039
55012	0.021	0.018	0.048
55013	0.056	0.044	0.007
55014	0.005	-0.025	-0.005
55015	-0.033	-0.026	0.006
55016	-0.018	0.001	0.026

55017	0.048	-0.059	0.011
55018	-0.016	-0.060	-0.057
55019	-0.068	-0.047	-0.054
55020	-0.010	0.000	0.002
55021	-0.000	-0.015	-0.002
55022	0.003	0.019	-0.011
55023	-0.040	0.023	-0.022
55024	0.016	0.080	-0.014
55025	-0.002	-0.037	0.044
55026	-0.005	-0.049	0.037
55027	-0.022	0.032	0.059
55028	0.031	-0.006	0.045
55029	-0.006	0.018	0.045
55030	-0.025	-0.040	-0.021
55031	-0.008	-0.026	-0.093
55032	0.036	0.050	-0.015
55033	0.028	-0.006	0.034
55034	-0.001	0.068	-0.012
55035	0.014	-0.020	-0.033

GNSS drift parameter for profile 17

constant part in [meter] X 0.042 Y 2.493 Z 5.326

linear part in [meter] X -0.029 Y 0.032 Z 0.052

55036	0.025	0.026	-0.016
55037	-0.018	0.043	0.005
55038	0.084	0.091	0.064
55039	0.089	0.007	0.141
55040	0.008	-0.038	0.039
55041	-0.050	0.006	0.025
55042	0.010	0.018	0.021
55043	-0.029	-0.013	-0.011
55044	-0.016	-0.066	-0.065

55045	-0.080	0.053	-0.050
55046	-0.003	0.014	-0.091
55047	-0.032	-0.094	-0.063
55048	-0.052	-0.061	-0.034
55049	0.018	-0.034	-0.024
55050	-0.087	-0.076	-0.006
55051	0.031	0.013	-0.007
55052	-0.044	-0.010	-0.009
55053	0.048	0.044	-0.015
55054	-0.018	-0.048	-0.017
55055	0.007	-0.007	-0.007
55056	0.012	0.021	-0.020
55057	0.061	0.025	0.000
55058	0.059	-0.020	-0.012
55059	0.002	0.011	-0.007
55060	-0.065	-0.018	0.039
55061	-0.049	0.037	0.027
55062	0.071	0.073	0.010
55063	0.006	-0.018	0.019
55064	0.038	0.014	0.049
55065	-0.027	0.006	0.018

GNSS drift parameter for profile 18

constant part in [meter] X 0.734 Y -1.927 Z 5.326

linear part in [meter] X 0.022 Y -0.008 Z -0.029

55066	0.033	0.078	-0.059
55067	0.083	-0.040	-0.027
55068	0.070	0.001	-0.031
55069	0.047	0.012	-0.043
55070	-0.008	-0.081	-0.020
55071	-0.020	-0.016	0.011
55072	-0.020	-0.009	0.058

55073	-0.009	0.056	-0.004
55074	-0.077	-0.094	0.035
55075	-0.027	-0.063	0.040
55076	-0.127	-0.026	0.030
55077	-0.007	-0.014	0.039
55078	0.078	0.046	-0.013
55079	-0.121	-0.036	-0.001
55080	-0.048	-0.001	0.003
55081	0.010	0.012	0.034
55082	-0.056	0.086	0.009
55083	-0.001	0.012	0.081
55084	-0.043	0.035	0.021
55085	0.059	0.097	-0.041
55086	0.024	-0.002	-0.012
55087	0.042	-0.014	-0.033
55088	0.029	-0.013	-0.007
55089	0.021	0.091	-0.015
55090	0.054	0.037	-0.008
55091	0.013	0.129	0.033
55092	-0.011	-0.017	0.010
55093	0.047	-0.029	-0.054
55094	0.068	-0.034	-0.025
55095	-0.034	-0.116	-0.030
55096	-0.025	-0.088	0.013
55097	-0.045	0.001	0.007

GNSS drift parameter for profile 19

constant part in [meter] X 2.136 Y -0.594 Z 5.264

linear part in [meter] X 0.117 Y -0.048 Z -0.021

53085	0.013	-0.022	-0.113
53086	-0.013	-0.003	-0.004
53087	0.017	0.056	0.065

53088	-0.014	0.055	-0.048
53089	0.017	-0.030	-0.003
53090	0.010	0.011	0.033
53091	0.022	0.020	0.020
53092	-0.029	-0.082	0.046
53093	0.012	0.005	0.079
53094	-0.028	-0.011	0.007
53095	-0.001	0.004	0.047
53096	-0.035	-0.023	-0.000
53097	-0.022	-0.023	-0.051
53098	-0.014	-0.052	-0.039
53099	0.024	0.004	0.008
53100	0.021	0.055	-0.044
53101	0.045	0.015	0.017
53102	-0.022	0.021	-0.019

GNSS drift parameter for profile 20

constant part in [meter] X -1.676 Y -1.421 Z 4.916

linear part in [meter] X -0.005 Y 0.015 Z -0.025

53103	0.007	-0.022	-0.007
53104	0.023	-0.009	-0.018
53105	0.016	-0.036	0.004
53106	0.046	-0.009	-0.019
53107	0.018	-0.016	-0.022
53108	-0.077	0.053	-0.017
53109	-0.048	-0.009	0.070
53110	0.014	0.032	0.013
53111	0.018	-0.054	0.080
53112	0.006	-0.047	0.084
53113	0.005	0.043	-0.016
53114	0.023	0.018	0.003
53115	0.085	0.017	-0.041

53116	0.001	0.008	-0.012
53117	-0.002	0.055	-0.054
53118	-0.042	0.041	-0.020
53119	-0.014	0.031	-0.047
53120	0.046	0.040	-0.037
53121	-0.047	-0.063	0.051
53122	-0.045	-0.117	0.040
53123	-0.043	0.024	0.044
53124	0.070	0.026	-0.054
53125	-0.089	0.008	-0.031
53126	-0.085	0.023	-0.027
53127	-0.001	0.055	-0.057
53129	0.007	-0.002	-0.023
53130	-0.072	0.048	0.031
53131	0.034	-0.077	0.063
53132	0.072	0.001	-0.017
53133	-0.029	-0.106	0.002
53134	-0.022	-0.008	-0.020
53135	0.033	0.015	-0.011
53136	0.024	0.026	0.043
53137	0.052	0.008	-0.017
53138	0.017	0.003	0.038

GNSS drift parameter for profile 21

constant part in [meter] X 1.415 Y 1.686 Z 5.007

linear part in [meter] X 0.006 Y 0.002 Z 0.012

53141	0.010	0.006	-0.037
53142	-0.038	0.019	-0.033
53143	-0.005	-0.075	-0.028
53144	0.022	-0.066	0.060
53145	0.024	0.045	0.172
53146	-0.030	0.100	0.161

53147	0.017	0.084	0.066
53148	0.057	-0.009	-0.030
53149	0.037	-0.006	-0.064
53150	0.102	-0.048	-0.006
53151	0.012	0.049	-0.037
53152	-0.004	0.035	-0.041
53153	0.011	0.049	-0.001
53154	-0.096	-0.023	-0.061
53155	0.025	-0.019	-0.009
53156	-0.070	-0.001	-0.029
53157	-0.029	0.023	-0.027
53158	-0.057	-0.016	-0.048
53159	-0.032	-0.041	-0.083
53160	-0.024	-0.045	-0.017
53161	-0.035	-0.018	-0.003
53162	0.005	0.034	0.032
53163	-0.025	-0.030	-0.000
53164	-0.052	0.003	0.012
53165	0.006	-0.010	-0.025
53166	-0.016	-0.011	0.023
53167	-0.046	-0.054	-0.044
53168	-0.029	-0.041	-0.009
53169	0.035	0.021	0.017
53170	0.054	-0.032	0.058
53171	0.075	0.057	0.076
53172	-0.082	0.014	-0.021
53173	-0.060	0.004	-0.012
53174	-0.090	-0.042	0.002
53175	0.044	0.004	-0.018
53176	0.041	-0.042	-0.031
53177	0.042	0.064	0.000
53178	0.063	0.023	-0.005
53179	0.044	0.086	0.003

53180	-0.010	-0.008	-0.052
53181	0.042	-0.061	-0.033
53182	0.046	-0.080	-0.064
53183	0.096	-0.026	-0.002
53184	0.060	0.009	0.061
53185	0.105	-0.009	0.031
53186	-0.003	0.009	0.082
53187	-0.011	-0.024	-0.022
53188	-0.013	-0.005	0.031
53189	-0.084	0.001	-0.014
53190	-0.027	0.041	0.033
53191	-0.008	-0.021	-0.012
53192	-0.024	0.016	0.002
53193	0.032	-0.026	-0.022
53194	-0.003	0.011	-0.038
53195	0.027	0.022	0.032
53196	-0.023	-0.047	-0.027
53197	0.017	-0.004	-0.001
53198	-0.012	0.025	-0.008
53199	-0.009	0.031	0.032
53200	0.003	0.027	0.013
53201	-0.080	0.023	-0.013
53202	-0.021	-0.015	-0.039
53203	-0.006	0.027	-0.011
53204	-0.019	0.025	0.037
53205	0.016	-0.031	0.041

GNSS drift parameter for profile 22

constant part in [meter] X -1.646 Y -1.509 Z 5.006

linear part in [meter] X -0.005 Y -0.006 Z -0.027

53206	-0.013	-0.019	0.032
53207	-0.005	0.002	0.002

53208	-0.001	-0.036	0.019
53209	-0.008	-0.013	-0.030
53210	-0.037	0.035	-0.059
53211	0.030	0.014	-0.034
53212	-0.013	-0.018	-0.032
53213	0.016	0.035	-0.061
53214	-0.021	-0.017	0.031
53215	0.009	0.076	-0.031
53216	0.006	-0.030	0.008
53217	0.015	-0.029	-0.007
53218	0.031	-0.035	0.000
53219	-0.033	-0.076	0.053
53220	0.027	-0.066	0.063
53221	0.067	-0.096	0.074
53222	0.038	0.009	0.026
53223	0.007	0.054	-0.057
53224	-0.046	0.123	0.051
53225	0.097	0.067	-0.055
53226	-0.025	0.049	0.026
53227	-0.036	0.100	0.028
53228	0.025	-0.009	0.021
53229	-0.062	0.072	-0.007
53230	-0.033	0.005	-0.011
53231	-0.096	-0.006	0.034
53232	0.035	-0.018	0.006
53233	0.039	-0.074	-0.007
53234	-0.010	-0.083	-0.042
53235	-0.069	0.020	-0.004
53236	-0.024	0.100	0.050
53237	0.011	-0.032	0.010
53238	0.038	-0.066	0.009
53239	-0.018	-0.067	-0.025
53240	-0.055	-0.005	0.012

53241	0.050	0.059	-0.063
53242	0.036	-0.074	0.023
53243	-0.016	-0.005	-0.016
53244	0.092	-0.064	0.022
53245	-0.055	-0.017	-0.031
53246	0.040	0.095	-0.039
53247	0.016	0.001	-0.050
53248	-0.070	0.097	0.001
53249	-0.019	0.043	0.041
53250	0.083	-0.006	0.032
53251	0.013	-0.074	-0.000
53252	-0.064	-0.035	-0.067
53253	-0.045	-0.025	0.052
53254	0.052	0.038	0.002

GNSS drift parameter for profile 23

constant part in [meter] X 1.486 Y 1.573 Z 5.144

linear part in [meter] X 0.004 Y 0.000 Z 0.011

53255	-0.011	0.068	0.043
53256	-0.022	-0.035	-0.005
53257	-0.003	0.066	0.025
53258	0.017	0.008	0.020
53259	0.031	-0.021	-0.039
53260	0.017	-0.038	-0.008
53261	0.062	-0.036	0.003
53262	0.024	0.001	-0.023
53263	0.058	0.020	0.060
53264	-0.021	-0.017	0.017
53265	0.026	0.117	0.047
53266	-0.005	-0.027	0.037
53267	0.033	-0.019	-0.028
53268	0.067	0.017	0.027

53269	-0.000	-0.032	-0.035
53270	-0.007	-0.013	-0.062
53271	0.042	-0.049	-0.033
53272	0.039	-0.028	-0.044
53273	0.025	-0.002	0.028
53274	-0.011	-0.010	-0.005
53275	-0.018	0.011	0.028
53276	-0.013	-0.002	0.050
53277	-0.017	0.008	0.023
53278	-0.012	0.008	0.016
53279	-0.054	-0.029	-0.005
53280	-0.034	-0.048	-0.006
53281	-0.072	-0.001	-0.039
53282	-0.019	0.008	-0.002
53283	-0.004	-0.013	0.013
53284	-0.046	-0.003	-0.030
53285	-0.038	0.024	-0.008
53286	-0.038	-0.014	-0.010
53287	0.014	0.014	-0.008
53288	-0.038	-0.001	-0.047
53289	-0.042	-0.006	-0.022
53290	0.035	-0.044	-0.019
53291	0.006	0.004	-0.013
53292	0.018	0.013	0.029
53293	0.002	0.000	-0.005
53294	-0.011	-0.020	0.003
53295	0.041	0.043	0.014
53296	-0.049	0.052	0.027
53297	-0.110	0.026	-0.037
53298	-0.026	-0.011	-0.045
53299	0.012	-0.019	-0.016
53300	-0.045	0.027	-0.049
53301	-0.045	0.025	0.056

53302	-0.060	0.016	0.046
53303	-0.042	0.001	-0.010
53304	-0.043	-0.038	-0.015
53305	-0.055	-0.032	-0.021
53306	-0.002	-0.029	-0.026
53307	0.041	0.004	0.014
53308	0.046	-0.025	-0.027
53309	0.038	0.038	0.053
53310	0.055	0.029	0.007
53311	-0.001	0.070	-0.048
53312	0.067	0.019	-0.031
53313	0.065	0.010	-0.033
53314	0.052	-0.003	0.003
53315	0.010	-0.034	-0.001
53316	-0.005	-0.016	0.006
53317	-0.011	0.028	0.032
53318	0.033	-0.005	0.003
53319	-0.029	0.003	-0.015
53320	0.028	-0.016	0.028
53321	0.026	0.019	0.036
53322	0.003	-0.020	0.021
53323	0.021	0.002	0.062
53324	-0.023	-0.003	0.006
53325	0.024	-0.041	-0.012

GNSS drift parameter for profile 24

constant part in [meter] X -1.709 Y -1.570 Z 5.015

linear part in [meter] X -0.016 Y -0.012 Z -0.017

53326	-0.034	0.009	0.006
53327	0.024	-0.028	-0.018
53328	-0.002	-0.022	-0.023
53329	0.037	0.000	-0.033

53330	-0.029	0.030	-0.025
53331	0.025	0.005	-0.018
53332	0.075	0.012	-0.019
53333	0.051	0.024	-0.046
53334	-0.028	0.065	-0.026
53335	0.050	-0.021	0.005
53336	0.056	-0.000	0.008
53337	0.010	0.036	0.018
53338	0.075	-0.028	-0.015
53339	-0.003	-0.013	-0.035
53340	0.039	-0.016	0.007
53341	-0.027	0.053	0.014
53342	-0.004	-0.045	0.023
53343	-0.014	-0.109	0.087
53344	-0.011	-0.062	0.077
53345	-0.012	0.058	-0.004
53346	-0.071	0.084	-0.021
53347	-0.056	0.124	-0.083
53348	-0.010	0.114	0.025
53349	-0.012	0.013	0.004
53350	-0.090	-0.036	-0.022
53351	-0.090	-0.044	-0.018
53352	-0.035	0.011	-0.021
53353	-0.060	0.070	-0.005
53354	-0.031	0.005	0.019
53355	0.070	0.004	0.041
53356	0.006	-0.028	0.028
53357	-0.014	-0.124	0.035
53358	0.001	-0.072	0.034
53359	0.046	-0.053	0.004
53360	-0.004	-0.022	0.012
53361	0.010	-0.041	-0.006
53362	-0.057	-0.016	0.050

53363	-0.025	-0.008	-0.006
53364	-0.123	-0.080	0.016
53365	-0.027	-0.021	-0.002
53366	0.051	-0.036	-0.004
53367	-0.065	-0.023	0.015
53368	0.025	0.076	-0.004
53369	0.052	0.059	0.009
53370	-0.032	0.005	0.047
53371	0.003	0.029	0.041
53372	0.022	-0.030	0.023
53373	-0.004	-0.022	0.034
53374	0.056	0.016	-0.004
53375	0.006	-0.064	0.042
53376	0.025	-0.030	0.010
53377	0.059	-0.019	-0.095
53378	0.055	0.048	-0.061
53379	0.073	0.084	-0.052
53380	-0.029	-0.010	0.004
53381	0.043	0.018	0.012
53382	-0.017	0.006	0.042
53383	0.042	0.021	0.005
53384	0.008	0.002	0.026
53385	-0.000	0.000	-0.008
53386	0.002	-0.033	0.001
53387	-0.035	-0.034	-0.014
53388	0.018	0.015	-0.029
53389	-0.028	0.082	-0.054
53390	-0.034	-0.035	-0.029
53391	-0.005	0.047	-0.029

GNSS drift parameter for profile 25

constant part in [meter] X 1.507 Y 1.572 Z 5.270

linear part in [meter] X 0.004 Y -0.011 Z 0.010

53392	-0.007	-0.016	-0.116
53393	-0.008	-0.025	-0.018
53394	-0.077	0.007	0.023
53395	-0.049	-0.012	0.009
53396	-0.002	-0.023	0.022
53397	-0.092	0.021	0.026
53398	-0.043	0.085	0.054
53399	-0.036	-0.028	0.049
53400	-0.019	0.062	0.031
53401	0.020	-0.028	0.045
53402	0.003	0.002	-0.004
53403	-0.008	-0.018	-0.001
53404	-0.003	0.029	0.043
53405	-0.004	0.003	-0.028
53406	-0.004	0.001	0.010
53407	0.009	-0.050	-0.040
53408	0.019	0.046	0.056
53409	0.054	-0.005	0.042
53410	0.027	0.001	0.036
53411	0.018	-0.026	-0.006
53412	0.010	-0.004	0.030
53413	0.035	0.020	-0.022
53414	-0.014	-0.050	-0.049
53415	0.006	-0.022	-0.022
53416	0.013	0.022	-0.017
53417	0.025	-0.004	-0.030
53418	-0.000	0.012	-0.040
53419	0.073	-0.044	-0.012
53420	0.075	-0.003	-0.001
53421	0.084	-0.053	0.013
53422	0.053	-0.001	-0.022
53423	0.009	-0.041	-0.041

53424	0.031	-0.008	-0.089
53425	0.022	-0.021	-0.036
53426	0.037	0.025	0.016
53427	-0.021	0.023	-0.007
53428	0.037	-0.001	-0.003
53429	-0.023	-0.003	-0.024
53430	-0.050	0.036	0.008
53431	-0.024	0.013	0.009
53432	-0.032	0.038	-0.013
53433	-0.067	0.067	-0.008
53434	-0.056	0.034	-0.060
53435	-0.010	-0.009	-0.022
53436	0.034	0.049	-0.022
53437	0.034	0.035	-0.080
53438	0.033	0.006	-0.004
53439	0.065	-0.051	-0.008
53440	0.012	0.001	0.058
53441	-0.009	-0.015	0.017
53442	-0.001	-0.003	0.082
53443	-0.018	-0.099	0.023
53444	0.039	-0.090	0.039
53445	0.085	0.019	0.115
53446	-0.015	0.058	0.053
53447	-0.065	-0.042	-0.001
53448	-0.017	0.046	-0.022
53449	-0.001	0.042	0.037
53450	-0.038	0.037	0.001
53451	-0.030	0.024	-0.016
53452	-0.051	0.020	-0.032
53453	-0.038	-0.009	0.003
53454	0.008	0.011	0.026
53455	-0.038	-0.013	0.029
53456	0.024	-0.041	-0.013

53457	-0.002	-0.026	-0.018
53458	0.035	-0.002	0.012
53459	-0.040	0.003	-0.007
53460	-0.014	0.002	-0.010
53461	0.014	0.065	0.005
53462	-0.008	-0.028	-0.032
53463	0.025	-0.035	-0.033
53464	-0.008	-0.029	-0.005
53465	-0.026	0.012	0.014

max standard deviations of terrain points

x	0.110 [meter] at point	20000098
y	0.188 [meter] at point	70006593
z	0.496 [meter] at point	70006593

mean standard deviations of terrain points

x	0.018
y	0.018
z	0.063

exterior orientation parameters (px, py, pz in [meter] omega,phi,kappa in [deg])

rotations from terrain to photo (rotated axes)

photo ID	px	py	pz	omega	phi	kappa
53050	476517.308	6687942.915	2207.293	-1.29605	-0.49223	1.34102
53051	476523.040	6688443.512	2201.236	-1.53557	-0.71673	0.26903
53052	476534.648	6688915.917	2199.991	-0.52872	-2.04639	1.34304

53053	476545.033	6689394.816	2200.776	-0.81669	-0.53806	1.91546
53054	476553.297	6689857.529	2200.933	-0.86851	-0.33672	2.47116
53055	476558.396	6690358.283	2200.310	-0.61816	-0.58031	2.95325
53056	476557.874	6690843.494	2205.257	-0.28560	-0.72677	4.48081
53057	476554.199	6691320.049	2206.396	-1.39603	-0.47819	4.30762
53058	476549.742	6691764.669	2204.641	-0.59113	-0.37522	4.06910
53059	476543.709	6692230.882	2209.338	-0.97545	-0.49266	4.11309
53060	476535.935	6692674.474	2205.994	-1.50277	0.92719	4.49064
53061	476529.393	6693156.683	2206.543	-0.73958	0.09748	3.93626
53062	476523.929	6693637.806	2204.846	-1.50191	0.79298	3.84724
53063	476519.733	6694105.932	2205.412	-0.65415	-0.15506	3.94067
53064	476514.564	6694598.667	2207.145	-1.47151	-0.93107	3.89814
53065	479394.645	6696251.843	2207.435	1.70026	0.05719	-176.91716
53066	479418.180	6695788.896	2204.816	0.65434	-0.98811	-178.54188
53067	479429.101	6695337.598	2205.802	1.41081	-2.18509	179.80613
53068	479429.340	6694922.512	2204.530	0.81625	-0.90441	178.60194
53069	479421.708	6694490.520	2206.105	0.93518	-0.85820	178.27876
53070	479414.392	6694071.341	2204.850	1.10409	-0.22312	179.26338
53071	479412.387	6693652.925	2207.051	1.15179	0.24215	179.05505
53072	479419.268	6693209.833	2205.431	0.94566	0.55908	-179.71101
53073	479433.643	6692813.413	2203.857	1.26383	1.00616	-178.24101
53074	479452.630	6692360.211	2203.369	0.79804	-0.85444	-179.20250
53075	479465.921	6691904.441	2206.156	1.00566	-1.23493	179.78151
53076	479472.262	6691466.837	2204.129	1.18625	0.08743	179.48672
53077	479474.871	6691054.787	2207.049	0.48014	0.10678	179.19360
53078	479474.201	6690600.325	2206.837	1.59689	-0.29349	178.42165
53079	479469.656	6690158.565	2203.185	0.75710	-0.13712	178.07099
53080	479463.883	6689751.517	2206.426	0.80390	0.62099	177.76513
53081	479457.934	6689299.240	2205.911	1.46477	0.65162	177.64839
53082	479453.035	6688874.306	2204.481	0.87028	-0.32984	177.76526
53083	479448.650	6688424.550	2206.472	1.25501	0.13548	178.43260
53084	479447.797	6687957.654	2206.522	0.76119	0.51964	-179.85073
53085	477980.009	6687741.071	2206.284	-0.83319	-2.00880	2.85173
53086	477987.739	6688210.141	2206.035	-1.54019	-0.62528	3.02021
53087	477988.811	6688623.347	2204.507	-1.87637	1.10706	3.85108
53088	477986.425	6689104.867	2204.361	-1.30249	-1.49660	4.09964
53089	477980.457	6689578.772	2201.404	-1.55895	-0.56866	4.71469
53090	477974.534	6690048.244	2202.494	-0.82037	-0.02729	2.35606
53091	477972.596	6690524.468	2201.831	-1.45117	-0.13451	2.57132

53092	477971.343	6691003.514	2201.418	-0.53529	0.06795	3.81568
53093	477970.938	6691424.931	2203.230	-1.00114	0.95620	2.35858
53094	477973.896	6691902.461	2205.954	-0.57760	-0.43516	2.23409
53095	477976.439	6692356.398	2208.337	-1.21521	0.73711	2.18228
53096	477979.828	6692821.362	2204.724	-1.24064	-0.06584	2.71633
53097	477982.543	6693291.137	2204.233	-0.78748	-0.88248	2.15132
53098	477984.549	6693761.176	2203.298	-0.68602	-0.45016	2.30755
53099	477986.993	6694242.338	2203.351	-0.64839	0.74559	2.61138
53100	477990.128	6694705.295	2201.939	-0.92499	-0.44170	2.40106
53101	477993.111	6695119.489	2200.909	-0.15887	1.12723	1.77566
53102	477996.577	6695593.426	2203.132	-0.71755	-0.02835	3.04286
53103	478426.831	6711115.242	2211.210	-0.16793	0.75281	-91.49293
53104	478899.575	6711114.307	2213.242	-0.52712	0.68918	-90.40663
53105	479353.033	6711120.436	2208.756	0.66927	1.15283	-90.38307
53106	479810.279	6711129.416	2209.812	-0.03928	0.40352	-89.62360
53107	480266.061	6711143.159	2208.688	0.86707	1.31708	-89.36895
53108	480693.257	6711156.487	2206.598	0.57002	0.57867	-89.52832
53109	481154.393	6711171.844	2208.263	2.50195	0.98457	-89.31650
53110	481564.892	6711181.179	2205.896	1.26337	0.81080	-90.42149
53111	482023.541	6711184.502	2208.270	1.47339	0.12343	-91.67853
53112	482481.676	6711181.433	2208.745	2.42555	0.99797	-92.26952
53113	482938.651	6711172.881	2206.163	-0.24929	0.38777	-91.76661
53114	483391.674	6711167.260	2209.949	0.11501	0.43256	-91.64288
53115	483802.749	6711165.222	2205.792	-0.19895	0.93533	-91.27905
53116	484264.698	6711167.211	2207.225	0.36886	-0.11913	-90.39548
53117	484724.392	6711172.501	2208.145	0.19456	0.96645	-90.09711
53118	485159.914	6711180.224	2208.657	0.04587	-0.08837	-90.08502
53119	485614.068	6711191.789	2210.830	0.42918	1.13564	-89.30741
53120	486070.154	6711205.272	2207.054	0.02630	0.28991	-89.28255
53121	486531.728	6711220.719	2209.615	2.40939	0.64148	-88.64412
53122	486989.263	6711230.168	2207.500	2.04674	0.65882	-90.29004
53123	487460.116	6711232.248	2210.346	1.25804	0.03735	-90.96553
53124	487916.236	6711228.015	2210.487	0.68506	1.25234	-92.40257
53125	488382.335	6711219.856	2207.891	0.45873	0.36741	-91.93962
53126	488845.817	6711214.157	2209.558	0.21350	0.67735	-90.93648
53127	489309.100	6711211.525	2206.979	-0.02863	0.88258	-90.71387
53129	490225.173	6711216.635	2209.018	0.85403	1.09981	-89.58799
53130	490681.808	6711219.648	2206.313	0.29690	0.47333	-89.52726
53131	491104.674	6711223.094	2210.133	0.85756	0.41452	-89.21576

53132	491523.874	6711225.899	2209.820	0.61200	1.22298	-89.45142
53133	491979.692	6711228.425	2207.109	0.91125	0.75176	-89.52647
53134	492444.615	6711229.523	2208.728	0.78600	0.70164	-89.70182
53135	492862.105	6711229.172	2206.975	0.67144	1.14145	-89.59528
53136	493327.172	6711227.702	2206.904	1.03918	0.26326	-89.99979
53137	493803.560	6711224.027	2209.915	0.30252	1.06471	-89.95704
53138	494269.701	6711221.078	2206.592	1.14795	0.99853	-90.21836
53141	501765.003	6715727.345	2207.551	1.94614	-1.22612	96.43604
53142	501323.755	6715719.402	2200.523	0.87856	-1.39174	97.49173
53143	500863.714	6715688.046	2204.618	0.78442	-0.56186	98.10576
53144	500419.764	6715643.217	2203.224	-1.97685	-1.41245	99.11914
53145	499972.854	6715599.192	2205.535	-3.87738	-0.53520	98.03751
53146	499559.216	6715570.677	2208.604	-4.17177	-1.02649	95.84238
53147	499115.231	6715554.922	2209.505	-2.15283	-0.54570	94.11687
53148	498672.466	6715547.833	2213.418	-0.00524	-0.35894	93.24263
53149	498231.430	6715541.790	2212.336	0.30680	-1.25649	93.17113
53150	497787.642	6715535.664	2209.319	-0.72756	-0.34732	93.02816
53151	497344.270	6715533.630	2210.841	0.20520	-0.73546	92.25880
53152	496899.868	6715534.635	2208.059	-0.02726	-0.91349	91.58564
53153	496438.584	6715538.885	2210.100	-0.65207	-0.33740	91.25046
53154	495992.943	6715545.908	2210.650	0.64688	-1.25765	90.84757
53155	495539.780	6715551.713	2208.409	0.04048	-0.97626	91.01749
53156	495071.573	6715557.136	2208.773	0.29816	-0.80936	91.52828
53157	494604.018	6715561.318	2209.045	-0.09445	-1.35520	91.21990
53158	494144.955	6715564.325	2207.353	0.58486	-0.75316	91.92147
53159	493675.460	6715563.530	2208.465	1.05607	-1.07752	92.18162
53160	493197.382	6715558.287	2204.699	-0.03002	-1.25325	92.73702
53161	492724.151	6715553.047	2203.307	0.52280	-0.51067	92.80303
53162	492252.768	6715548.416	2205.730	-0.30574	-0.83377	92.73813
53163	491794.500	6715544.989	2204.778	0.37074	-0.73070	93.07488
53164	491328.412	6715540.572	2208.303	0.01724	-0.34596	92.29110
53165	490851.564	6715536.113	2208.458	0.16809	-1.27676	92.64880
53166	490392.137	6715531.146	2207.515	-0.24747	-0.37809	92.65452
53167	489924.033	6715529.833	2209.664	0.65816	-1.32576	92.17053
53168	489458.451	6715530.954	2206.377	0.13668	-0.62224	91.81124
53169	488980.063	6715534.070	2210.896	-0.45898	-1.07054	91.55083
53170	488499.565	6715538.678	2206.005	-0.72183	-1.12969	91.73816
53171	488029.984	6715544.499	2206.438	0.01776	-0.30287	91.98151
53172	487564.994	6715550.425	2206.177	1.08745	-1.18967	91.94925

53173	487099.059	6715554.458	2206.842	1.04736	-0.21112	91.72348
53174	486611.331	6715555.906	2209.504	-0.37570	-1.31365	91.79108
53175	486142.288	6715557.983	2206.562	0.28101	-0.50132	91.85283
53176	485665.408	6715559.032	2210.265	0.27736	-1.12220	91.47847
53177	485194.821	6715558.707	2205.616	0.09989	-0.92718	92.40836
53178	484729.645	6715557.573	2206.330	0.23405	-0.50884	92.23965
53179	484263.224	6715557.270	2207.925	-0.20866	-0.84228	92.13687
53180	483783.793	6715558.196	2207.810	0.76729	-0.98360	91.59111
53181	483328.837	6715556.373	2208.148	0.35057	-0.61557	92.27368
53182	482859.033	6715553.133	2207.888	0.90178	-1.33134	91.98782
53183	482378.915	6715549.223	2205.498	0.14939	-0.72686	91.64452
53184	481942.212	6715546.056	2207.662	-0.89470	-0.67576	91.80686
53185	481461.843	6715543.231	2204.746	-0.02815	-1.04481	91.75327
53186	480984.696	6715540.215	2208.497	-0.56305	-0.33532	92.15637
53187	480506.822	6715536.537	2209.374	0.90232	-1.38521	92.32164
53188	480055.481	6715529.254	2208.365	-0.00658	-0.71531	92.41991
53189	479578.139	6715523.692	2208.431	0.49575	-1.35239	91.95273
53190	479118.635	6715518.785	2204.534	-0.52817	-0.64414	92.07126
53191	478657.575	6715516.170	2206.785	0.05011	-0.75294	92.05800
53192	478178.468	6715515.391	2205.128	-0.42360	-1.15584	91.42236
53193	477725.553	6715517.462	2207.468	0.45729	-0.26101	91.74108
53194	477258.091	6715518.830	2209.305	-0.13820	-1.52486	91.38679
53195	476791.076	6715521.394	2207.092	-0.81610	-0.51440	91.62358
53196	476329.107	6715527.685	2209.048	0.17741	-1.17303	90.86052
53197	475828.530	6715536.235	2205.823	0.17651	-0.73587	91.19925
53198	475330.948	6715545.613	2208.316	0.49783	-1.00771	90.67883
53199	474854.993	6715555.302	2206.168	-0.47811	-1.24704	90.75714
53200	474426.574	6715565.665	2207.710	0.27012	-0.45488	90.55380
53201	474000.537	6715576.110	2209.052	-0.31946	-1.58425	90.27620
53202	473514.338	6715589.157	2205.099	0.83600	-0.65421	91.06750
53203	473041.204	6715599.752	2207.077	0.18956	-0.74298	91.36323
53204	472570.682	6715611.671	2204.648	-0.95638	-1.21900	91.80257
53205	472103.953	6715627.618	2204.516	-0.41622	-0.09942	91.05172
53206	471636.806	6712683.836	2208.821	0.79473	0.95236	-95.48416
53207	472102.735	6712648.842	2208.183	-0.76092	-0.06337	-95.64272
53208	472557.928	6712615.682	2211.828	0.27033	1.12048	-95.79304
53209	473000.365	6712585.518	2206.748	-1.14394	0.83107	-93.95136
53210	473471.645	6712568.295	2208.187	-1.67879	0.52053	-89.67336
53211	473921.238	6712567.767	2206.458	-0.79286	1.27166	-88.63597

53212	474400.410	6712580.938	2207.127	-0.99402	0.30530	-86.94697
53213	474875.142	6712605.484	2205.772	-0.59709	1.27944	-85.97832
53214	475349.075	6712636.505	2204.575	1.08717	0.18407	-85.15880
53215	475790.517	6712667.362	2207.574	0.35361	0.82846	-84.67565
53216	476268.668	6712701.429	2205.699	2.13444	0.84519	-87.29345
53217	476740.484	6712720.016	2208.859	1.51939	0.07065	-90.15843
53218	477226.498	6712721.679	2208.696	1.83606	0.92828	-91.28821
53219	477691.926	6712709.386	2208.311	1.58055	-0.26115	-92.24144
53220	478095.985	6712688.359	2212.101	1.78032	0.70482	-93.79470
53221	478566.880	6712651.743	2209.736	1.53703	0.42135	-95.10383
53222	478983.799	6712613.306	2211.178	-0.07570	0.77083	-93.09601
53223	479451.491	6712579.908	2205.752	-1.81079	0.97234	-89.00436
53224	479867.872	6712571.787	2206.749	0.14032	0.09301	-83.60631
53225	480346.271	6712585.773	2206.610	-1.03612	0.99129	-85.73637
53226	480810.126	6712612.687	2206.460	1.10524	0.61637	-83.88705
53227	481238.425	6712641.130	2209.067	1.28284	0.99344	-84.99989
53228	481706.850	6712665.651	2207.417	1.76987	1.22435	-86.21183
53229	482148.803	6712681.008	2210.353	0.38570	0.60808	-86.92884
53230	482613.265	6712692.163	2208.774	1.82525	1.57834	-88.45593
53231	483102.960	6712694.611	2208.274	1.39296	0.82293	-89.42744
53232	483581.333	6712690.735	2205.347	1.35186	1.44724	-89.59375
53233	484056.377	6712679.853	2205.380	0.18186	0.36275	-90.70272
53234	484565.241	6712665.888	2206.786	-0.58456	1.44967	-91.02821
53235	485047.776	6712657.023	2203.475	-0.78534	0.75387	-90.27943
53236	485544.239	6712653.724	2204.472	-0.32668	1.05608	-89.26130
53237	485996.509	6712653.270	2201.281	-0.24171	0.60124	-89.47074
53238	486426.199	6712654.270	2204.724	-0.09426	0.37328	-89.33433
53239	486926.358	6712656.107	2203.793	-0.28664	0.78047	-88.77351
53240	487358.320	6712659.303	2205.506	0.29125	0.08090	-88.60531
53241	487838.593	6712662.624	2208.055	-0.49422	0.83886	-88.41449
53242	488307.617	6712666.915	2208.398	0.97903	0.60110	-88.56308
53243	488794.798	6712668.406	2210.096	-0.29792	0.82094	-88.79933
53244	489231.902	6712670.229	2208.627	0.32606	1.16008	-88.97042
53245	489716.778	6712671.281	2208.227	-0.27623	0.57291	-88.93553
53246	490153.981	6712673.067	2208.457	0.07874	0.94689	-88.58138
53247	490623.090	6712674.478	2205.540	0.34212	0.92123	-88.95581
53248	491081.818	6712674.571	2208.140	-0.10697	0.41767	-88.94447
53249	491564.318	6712674.646	2208.162	0.49283	1.36031	-89.24671
53250	492059.727	6712673.122	2206.108	-0.32650	0.46768	-89.24407

53251	492497.576	6712673.226	2208.786	0.47683	0.61703	-89.07871
53252	492964.341	6712672.701	2207.510	-0.42671	1.36997	-89.09851
53253	493459.957	6712673.906	2208.761	0.42194	0.53186	-89.08507
53254	493937.617	6712674.622	2210.403	-0.54227	1.32721	-89.25712
53255	502965.980	6716973.327	2210.182	-0.22441	-0.13758	90.53241
53256	502531.332	6716985.322	2213.513	0.83465	-0.88666	89.92628
53257	502105.397	6716997.025	2209.138	-0.03518	-1.01840	90.29753
53258	501667.935	6717008.357	2209.625	0.74514	-0.51944	90.71407
53259	501223.686	6717015.093	2209.499	1.60468	-1.13784	91.65151
53260	500780.424	6717014.441	2207.127	0.98781	-0.91032	92.02808
53261	500324.013	6717008.215	2209.780	0.99019	-0.75837	92.90238
53262	499886.961	6716996.442	2207.198	0.98003	-1.55202	93.66176
53263	499440.532	6716980.110	2205.151	-0.55462	-0.72020	93.72737
53264	499009.703	6716964.763	2208.580	-0.06618	-1.26538	93.12422
53265	498557.465	6716951.659	2206.642	-0.82348	-1.25406	92.21567
53266	498102.693	6716942.570	2208.939	-0.19396	-0.94754	92.31802
53267	497673.501	6716936.190	2205.090	0.16488	-1.55958	92.30003
53268	497231.045	6716933.179	2205.763	-0.51384	-0.47471	91.70883
53269	496785.220	6716935.385	2207.748	0.12488	-1.52296	91.25580
53270	496361.066	6716939.361	2205.376	0.51874	-1.06111	90.78753
53271	495936.698	6716942.745	2207.182	0.85722	-0.80316	91.17788
53272	495494.499	6716943.504	2204.795	0.89494	-1.48323	91.40181
53273	495057.502	6716942.364	2203.441	0.20858	-0.46035	91.32542
53274	494620.333	6716941.638	2206.136	0.48642	-1.17940	91.30771
53275	494178.936	6716941.292	2202.937	-0.00423	-0.91287	91.41052
53276	493730.731	6716942.491	2204.984	-0.05059	-0.47839	91.70941
53277	493284.293	6716945.783	2205.195	-0.24853	-1.16796	91.01738
53278	492840.836	6716951.970	2206.574	0.06118	-0.43734	90.59772
53279	492414.244	6716959.405	2208.418	0.40232	-1.19293	90.19954
53280	492016.698	6716966.227	2205.339	0.28742	-0.95696	90.64568
53281	491554.213	6716972.963	2208.118	0.91216	-0.72935	90.31466
53282	491112.877	6716978.387	2205.879	-0.03280	-1.39197	89.95604
53283	490712.725	6716984.746	2206.744	0.30316	-0.36446	90.03455
53284	490227.435	6716993.131	2207.088	-0.03186	-1.60007	89.95839
53285	489771.651	6717001.185	2206.085	-0.31242	-0.38981	90.45465
53286	489325.994	6717008.634	2207.856	-0.53922	-1.51746	91.07244
53287	488900.398	6717014.438	2205.335	0.36332	-1.01046	90.96412
53288	488474.876	6717016.200	2209.183	1.01637	-1.09232	91.35543
53289	487988.936	6717009.082	2204.480	-0.04538	-1.81929	92.67307

53290	487539.135	6716998.467	2203.333	0.09176	-0.71426	92.74726
53291	487098.031	6716985.811	2204.314	-0.17405	-1.47847	92.97961
53292	486645.993	6716971.772	2202.197	-0.69350	-0.72706	92.64654
53293	486188.793	6716958.373	2206.046	-0.16296	-1.03968	92.84995
53294	485730.490	6716947.815	2202.447	-0.42862	-0.87464	91.18164
53295	485293.724	6716945.868	2205.773	-0.47947	-0.40415	90.73538
53296	484854.618	6716950.094	2210.185	-0.84927	-0.79286	89.37087
53297	484418.309	6716960.440	2209.989	-0.16671	-1.49755	89.01323
53298	484017.097	6716972.501	2207.067	-0.04170	-0.94636	88.77011
53299	483583.823	6716987.647	2210.131	-0.26377	-1.03502	87.89086
53300	483118.065	6717005.610	2205.744	0.21626	-1.65246	87.96261
53301	482655.395	6717022.319	2203.445	-0.69604	-0.56010	88.66917
53302	482200.496	6717038.817	2204.489	-0.57303	-1.10627	88.81748
53303	481744.924	6717056.056	2200.755	0.38253	-0.88185	88.96103
53304	481321.513	6717070.725	2205.073	1.13030	-0.30684	88.69875
53305	480886.790	6717077.738	2208.744	0.15820	-1.49508	91.39195
53306	480442.119	6717075.110	2203.908	0.76012	-0.62346	91.76076
53307	480027.217	6717066.241	2205.718	0.06402	-0.63819	92.58165
53308	479593.156	6717051.421	2203.213	0.35189	-1.17506	93.72245
53309	479146.527	6717031.056	2202.090	-1.17811	-0.42097	94.08622
53310	478705.297	6717014.052	2208.268	-0.23268	-0.11725	92.34683
53311	478252.345	6717002.007	2213.151	-0.29225	-1.60837	91.10359
53312	477804.151	6716994.663	2209.401	-0.11543	-0.97722	90.81718
53313	477352.225	6716991.471	2209.218	-0.16042	-1.39312	90.36703
53314	476919.181	6716991.722	2203.740	-0.29265	-1.16753	90.43317
53315	476480.149	6716994.736	2205.285	0.52160	-0.42052	90.15013
53316	476041.956	6716999.937	2208.184	0.16613	-1.25994	90.09842
53317	475621.391	6717005.093	2205.146	-0.22559	-1.03405	90.42288
53318	475154.539	6717008.771	2206.769	0.31062	-0.52920	91.00300
53319	474708.385	6717008.030	2206.038	0.48113	-1.31884	91.32576
53320	474272.632	6717003.306	2204.317	-0.17731	-0.54464	91.65579
53321	473851.893	6716997.758	2207.314	-0.05284	-0.69416	91.58650
53322	473409.681	6716990.597	2206.067	0.39405	-1.05290	91.71121
53323	472957.385	6716980.421	2206.906	-0.10470	-0.38564	91.98433
53324	472533.357	6716970.091	2209.235	0.14099	-0.98967	92.19336
53325	472097.610	6716957.641	2207.575	0.35682	-1.27649	92.54207
53326	471318.274	6714156.068	2203.837	0.48256	-0.26768	-90.08921
53327	471792.950	6714142.537	2204.919	0.88583	1.20855	-91.18303
53328	472216.250	6714123.524	2205.320	-0.23282	-0.42434	-91.77692

53329	472650.651	6714104.804	2211.332	0.65696	1.09045	-90.77731
53330	473110.684	6714086.548	2208.900	-0.02406	0.53089	-90.53391
53331	473533.075	6714071.091	2211.510	0.33897	1.26211	-89.93963
53332	474001.805	6714056.715	2208.247	-0.60360	0.74338	-90.02970
53333	474471.506	6714049.294	2208.097	-0.54978	1.53749	-88.81169
53334	474959.831	6714048.071	2202.677	-0.88436	0.90695	-87.90102
53335	475435.570	6714052.975	2203.918	0.05060	0.94944	-87.29917
53336	475882.186	6714060.253	2200.626	-0.19693	0.62152	-86.79216
53337	476389.715	6714071.465	2208.238	0.26677	0.54420	-86.82493
53338	476852.093	6714082.798	2207.878	0.50445	1.19146	-87.92451
53339	477340.781	6714095.682	2207.776	0.05244	0.46273	-87.22224
53340	477823.867	6714109.297	2207.293	1.70261	1.39922	-86.69703
53341	478327.165	6714113.454	2204.772	1.06353	0.06379	-88.75895
53342	478797.186	6714106.333	2209.045	1.76293	0.84930	-89.99675
53343	479275.625	6714089.705	2205.803	2.00009	0.13338	-90.93053
53344	479719.091	6714065.502	2207.714	1.39776	0.33511	-91.73010
53345	480195.976	6714035.738	2208.651	-0.67510	0.44025	-89.18692
53346	480666.997	6714022.502	2210.982	-1.09721	1.01083	-84.77272
53347	481136.676	6714033.323	2207.104	-2.89373	0.19769	-85.30312
53348	481608.838	6714057.490	2209.911	0.47551	0.81899	-84.39251
53349	482091.223	6714083.790	2208.455	0.97062	0.75685	-85.22642
53350	482570.330	6714107.919	2210.214	1.57384	1.53312	-85.48444
53351	483079.716	6714127.436	2203.180	1.23625	0.31324	-86.53337
53352	483547.254	6714139.379	2209.546	0.99748	1.05036	-87.21876
53353	484013.952	6714146.537	2205.939	-0.02251	0.37654	-87.83292
53354	484475.271	6714150.355	2210.237	0.73659	0.90867	-88.37488
53355	484946.127	6714150.310	2208.888	0.76961	1.05865	-88.59623
53356	485424.037	6714147.035	2211.623	0.29725	1.11896	-88.93658
53357	485905.217	6714140.672	2208.417	0.98024	1.64864	-89.58165
53358	486402.790	6714131.678	2207.977	-0.57182	0.53768	-89.34123
53359	486899.514	6714127.084	2207.526	0.13349	2.05807	-89.33415
53360	487391.662	6714126.296	2204.529	-0.47768	0.47559	-88.53698
53361	487890.982	6714129.257	2205.663	0.00668	1.66832	-88.14358
53362	488389.782	6714133.222	2204.917	0.74163	0.47771	-88.23825
53363	488861.256	6714135.601	2207.222	0.29071	1.45528	-88.31497
53364	489350.403	6714137.300	2203.761	0.42193	0.93667	-88.67029
53365	489840.094	6714137.810	2207.771	-0.33310	0.70990	-88.48002
53366	490346.089	6714140.539	2207.920	0.69967	1.48100	-89.16449
53367	490850.966	6714143.510	2207.926	0.62175	1.06426	-89.43329

53368	491343.267	6714149.304	2208.608	-0.31267	1.39507	-89.21774
53369	491828.631	6714158.944	2204.789	0.06070	1.43464	-88.57658
53370	492314.294	6714168.608	2203.045	0.02444	0.36652	-88.26617
53371	492796.575	6714174.516	2208.224	-0.09691	1.10538	-89.55327
53372	493282.430	6714175.392	2206.251	0.32033	1.21977	-90.95092
53373	493734.997	6714173.014	2207.828	0.40779	0.70916	-90.30760
53374	494200.820	6714168.263	2206.743	0.35426	1.58160	-90.35782
53375	494679.560	6714159.375	2205.800	0.77629	0.52896	-90.97606
53376	495143.971	6714146.787	2209.348	0.29885	1.21572	-91.47487
53377	495600.264	6714134.037	2207.162	-2.01753	1.39202	-91.78873
53378	496042.829	6714129.604	2209.695	-1.36543	1.35721	-91.06483
53379	496528.553	6714132.954	2203.534	-0.28452	2.11691	-89.01285
53380	497013.007	6714139.424	2202.051	0.03810	0.36573	-88.82791
53381	497483.526	6714146.317	2204.143	0.84575	1.56759	-88.57402
53382	497973.721	6714150.309	2203.221	0.39354	0.30619	-89.69576
53383	498462.887	6714150.523	2207.460	0.33796	1.21412	-89.91794
53384	498942.578	6714147.329	2204.459	0.77010	0.65671	-90.40760
53385	499423.673	6714140.185	2208.245	-0.14840	0.60088	-90.63864
53386	499884.033	6714132.379	2207.071	0.59776	1.41789	-90.84912
53387	500345.806	6714122.096	2207.405	-0.18842	0.38423	-90.91711
53388	500853.009	6714110.678	2208.699	0.30716	1.40332	-91.19657
53389	501343.202	6714098.739	2206.905	-0.78408	0.70503	-91.48982
53390	501839.635	6714089.696	2208.369	-0.33780	1.10397	-90.51472
53391	502295.576	6714083.797	2204.245	-0.24158	1.19314	-90.35035
53392	504545.101	6718421.110	2208.880	2.70822	-1.54385	90.91719
53393	504096.082	6718418.903	2208.202	0.91531	-0.46875	91.46033
53394	503667.987	6718408.583	2209.819	-0.35338	-1.19518	92.00231
53395	503256.982	6718397.445	2207.796	-0.12449	-0.86665	92.61843
53396	502850.126	6718387.580	2209.515	0.03180	-0.00560	91.47584
53397	502444.388	6718381.958	2212.309	-0.49657	-1.29876	89.80116
53398	502041.358	6718384.210	2210.505	-0.55333	-0.69631	88.86083
53399	501578.350	6718392.564	2213.183	-0.47200	-0.83556	89.88573
53400	501193.704	6718401.853	2210.025	-0.73621	-1.33313	89.81812
53401	500767.119	6718413.429	2208.101	-0.36160	-0.31688	90.25675
53402	500373.840	6718423.709	2209.845	0.12443	-1.06037	90.64469
53403	499961.576	6718431.262	2208.061	0.51951	-1.02589	91.44271
53404	499514.414	6718433.115	2210.241	-0.44700	-0.89805	92.28802
53405	499077.386	6718430.289	2206.499	0.44565	-1.36080	92.87291
53406	498642.912	6718422.830	2205.901	-0.40701	-0.47283	93.27617

53407	498193.352	6718414.153	2206.987	-0.08197	-1.12296	93.39010
53408	497794.472	6718406.185	2206.254	-2.04839	-1.18873	92.32494
53409	497341.776	6718404.500	2207.292	-0.81794	-0.82609	90.80360
53410	496895.776	6718410.912	2208.016	-0.92951	-0.79783	90.34300
53411	496480.932	6718422.102	2206.459	-0.09909	-1.17301	89.54062
53412	496058.619	6718435.179	2206.065	-0.22298	-0.44083	89.80027
53413	495604.598	6718448.747	2208.157	0.55533	-1.08310	90.24028
53414	495174.465	6718458.210	2206.497	1.11613	-1.01764	90.69445
53415	494715.863	6718464.057	2211.037	0.35454	-1.03794	90.49300
53416	494239.696	6718467.865	2207.565	-0.11423	-1.45768	90.83025
53417	493812.722	6718469.665	2210.224	0.79608	-0.80081	90.64136
53418	493332.445	6718468.128	2205.991	0.35766	-1.80454	91.11275
53419	492867.297	6718463.763	2204.206	0.40036	-0.50823	91.95862
53420	492436.457	6718457.054	2204.077	-0.45399	-1.33144	92.21307
53421	491994.182	6718450.989	2203.997	0.03741	-0.33516	91.94617
53422	491548.546	6718444.953	2208.327	-0.44332	-0.97141	91.76589
53423	491093.054	6718440.686	2205.990	0.18884	-0.84944	91.51082
53424	490641.759	6718435.772	2209.792	0.53365	-0.86927	91.54130
53425	490187.496	6718427.749	2206.560	-0.28477	-1.22022	91.69037
53426	489723.782	6718420.446	2208.034	-0.49581	-0.65958	91.00565
53427	489260.616	6718415.781	2205.341	-0.51629	-1.15773	90.85527
53428	488802.122	6718415.100	2206.638	-0.22091	-0.40218	90.32478
53429	488333.887	6718419.067	2208.566	-0.19087	-1.29305	90.13956
53430	487881.508	6718425.097	2207.837	-0.02690	-0.66264	89.90753
53431	487428.813	6718432.976	2208.372	-0.11545	-1.17116	89.72916
53432	486972.088	6718443.385	2205.317	0.03591	-0.94098	89.94488
53433	486516.024	6718454.573	2208.944	-0.24607	-0.87822	89.34009
53434	486054.962	6718466.386	2205.418	0.76438	-1.27472	89.66175
53435	485593.219	6718475.175	2207.404	0.20644	-0.45508	89.71089
53436	485123.595	6718482.525	2207.924	-0.58767	-1.64868	91.03189
53437	484663.230	6718487.482	2204.004	1.01404	-0.77666	90.66062
53438	484231.056	6718487.638	2207.052	-0.04935	-0.72800	91.81721
53439	483769.546	6718483.479	2205.097	-0.03642	-1.48471	92.97416
53440	483281.577	6718477.412	2207.643	-0.10571	-0.32686	91.35205
53441	482815.138	6718470.102	2206.246	0.35014	-1.67082	91.84274
53442	482354.248	6718458.241	2204.002	-0.06109	-0.27403	92.26918
53443	481901.255	6718443.105	2206.203	0.53791	-1.36046	92.92963
53444	481439.943	6718424.807	2204.170	-0.06234	-0.38994	93.03295
53445	480980.835	6718407.572	2208.395	-2.07733	-0.85156	92.66611

53446	480545.920	6718397.128	2207.593	-1.04167	-0.95983	92.01923
53447	480088.249	6718392.860	2209.976	-0.50394	-0.57955	90.27509
53448	479642.029	6718395.651	2207.767	-0.47763	-1.65646	89.89920
53449	479183.949	6718405.082	2204.885	-1.00274	-0.41662	89.54915
53450	478771.560	6718420.337	2207.753	-0.00699	-0.93358	88.73500
53451	478313.997	6718438.490	2210.193	0.24425	-0.55807	88.38758
53452	477856.516	6718455.092	2212.279	0.53557	-1.95140	88.26969
53453	477399.889	6718469.763	2207.217	0.29430	-1.34217	88.46743
53454	476979.347	6718482.455	2206.304	0.19009	-1.58282	89.06518
53455	476518.630	6718495.400	2201.204	0.43459	-0.98571	89.19287
53456	476079.346	6718502.647	2206.590	1.73177	-0.80659	90.11858
53457	475609.783	6718500.995	2203.352	0.80963	-1.64656	90.80435
53458	475125.936	6718494.168	2202.922	0.61564	-0.31871	91.49441
53459	474667.230	6718483.150	2208.127	0.69309	-1.39378	91.83788
53460	474203.160	6718469.289	2205.820	0.56562	-0.82663	92.20771
53461	473748.192	6718453.758	2210.663	0.28274	-1.27406	91.52732
53462	473282.460	6718436.149	2206.515	0.36807	-1.67296	92.03252
53463	472791.394	6718415.837	2207.413	0.79650	-1.05588	92.32480
53464	472346.540	6718394.876	2206.212	0.13204	-1.84662	92.38841
53465	471868.561	6718370.747	2202.315	0.08055	-0.79341	93.25871
53466	480607.578	6721311.444	2210.912	0.23520	1.42373	-88.59653
53467	481130.243	6721303.156	2205.725	0.31888	1.39459	-89.04864
53468	481617.563	6721297.735	2209.081	0.26006	0.82434	-88.09691
53469	482131.026	6721296.196	2204.512	-0.90187	1.90931	-87.84945
53470	482586.108	6721299.536	2201.824	0.32369	0.47057	-86.69593
53471	483070.368	6721306.776	2203.195	0.70897	1.43669	-85.55287
53472	483584.369	6721316.589	2205.116	-0.01487	0.42394	-86.18253
53473	484088.959	6721330.088	2210.766	0.57984	1.91828	-85.92194
53474	484597.336	6721345.283	2205.542	0.36449	1.04169	-85.49513
53475	485133.574	6721363.331	2206.466	1.72427	1.84116	-85.90336
53476	485666.855	6721375.704	2203.863	0.85317	0.56362	-86.95351
53477	486177.300	6721382.812	2206.484	0.85212	1.65744	-86.91641
53478	486671.891	6721382.240	2203.965	0.65892	0.43695	-88.68949
53479	487168.094	6721372.980	2207.555	1.02919	1.44760	-89.04323
53480	487676.860	6721357.845	2204.541	0.35844	0.32211	-89.90769
53481	488172.261	6721342.120	2209.233	0.33191	1.43227	-89.34731
53482	488672.270	6721326.862	2204.636	-0.21331	0.61882	-89.55344
53483	489179.923	6721313.898	2210.576	0.56737	1.15167	-89.21202
53484	489684.871	6721303.935	2205.703	-0.96331	1.09870	-88.85428

53485	490183.651	6721300.721	2207.544	-0.73867	1.12297	-87.60376
53486	490696.013	6721304.256	2204.778	0.06795	1.22647	-87.57462
53487	491205.819	6721312.504	2206.034	-0.51933	1.50441	-86.59051
53488	491665.298	6721324.738	2200.726	-0.25549	1.09439	-86.32902
53489	492145.698	6721340.991	2203.774	0.03796	1.01957	-85.56107
53490	492597.714	6721359.104	2204.253	0.00883	0.81708	-85.66479
53491	493102.735	6721379.508	2208.848	1.00826	0.83353	-86.07384
53492	493632.877	6721395.813	2205.986	1.35345	1.28731	-86.84127
53493	494138.603	6721401.611	2209.661	0.94251	0.59370	-88.99935
53494	494635.443	6721397.477	2206.626	1.07604	1.47375	-90.05468
53495	495131.593	6721385.029	2208.360	0.75659	0.48385	-90.62837
53496	495623.202	6721367.682	2206.265	1.03959	1.59011	-90.89096
53497	496121.282	6721345.659	2207.617	0.34522	0.52326	-91.43800
53498	496611.005	6721329.199	2205.948	-2.79169	1.65751	-87.65124
53499	497116.203	6721337.751	2207.126	-1.60112	0.44193	-85.49281
53500	497623.932	6721366.044	2201.829	-0.00214	1.32748	-83.82646
53501	498118.407	6721393.958	2205.975	-0.58302	0.12303	-88.08468
53502	498614.592	6721408.438	2205.455	2.14275	1.57048	-91.00327
53503	499137.164	6721404.019	2209.063	0.12358	0.54957	-89.42255
53504	499673.201	6721392.652	2206.733	0.82620	0.89749	-89.87333
53505	500173.161	6721377.207	2208.024	0.81612	0.80646	-89.30016
53506	500675.019	6721361.054	2208.012	-0.43471	1.19625	-90.10492
53507	501172.070	6721347.165	2209.352	0.42167	0.79845	-89.62831
53508	501711.084	6721337.014	2210.170	0.23456	1.58238	-89.19318
53509	502233.575	6721330.857	2206.388	-0.22707	1.68011	-88.96997
53510	502748.217	6721330.690	2203.713	-0.88180	1.05766	-88.31485
53511	503256.177	6721339.556	2201.987	-0.31456	1.56118	-87.66635
53512	503764.363	6721355.032	2200.043	-0.32707	0.73787	-87.27382
53513	504275.472	6721375.682	2202.597	0.01310	0.95511	-86.51181
53514	505160.111	6719821.389	2204.572	-0.49299	-0.62936	90.07281
53515	504692.091	6719832.333	2209.171	0.90631	-0.90312	89.84174
53516	504232.828	6719838.741	2206.184	0.69917	-1.08041	90.41736
53517	503776.798	6719840.334	2208.278	-0.02495	-0.64836	91.22527
53518	503313.810	6719837.528	2208.033	-0.30004	-1.52024	92.23595
53519	502887.414	6719833.851	2204.592	0.41514	-0.83762	91.72110
53520	502448.332	6719831.059	2207.056	0.60885	-0.95629	91.10531
53521	501990.222	6719830.550	2206.174	0.85482	-1.36217	90.20528
53522	501503.588	6719829.425	2203.619	0.50012	-0.90057	90.67763
53523	501043.520	6719826.885	2205.973	0.95105	-1.05303	90.72643

53524	500584.261	6719822.110	2204.351	1.20023	-1.28428	90.84111
53525	500119.133	6719817.433	2206.765	0.79615	-0.81220	89.21943
53526	499656.960	6719818.102	2204.304	0.32918	-1.72174	90.16565
53527	499190.753	6719818.643	2205.204	-0.32472	-0.47015	90.47025
53528	498753.569	6719823.808	2204.447	-0.79672	-1.66174	89.59603
53529	498294.318	6719836.666	2204.267	-0.60004	-0.27710	88.83358
53530	497826.168	6719855.809	2205.505	-0.16247	-1.38809	88.37302
53531	497353.578	6719878.429	2206.337	0.27222	-0.36698	87.60278
53532	496894.823	6719898.878	2208.319	0.42421	-1.40232	88.10773
53533	496417.902	6719918.330	2203.444	1.65238	-0.92505	89.29261
53534	495958.773	6719924.477	2209.603	1.08486	-0.44306	91.38843
53535	495496.239	6719912.544	2206.717	0.18783	-1.95923	93.61482
53536	495028.036	6719887.234	2205.988	0.13419	-0.79524	95.03991
53537	494559.112	6719852.238	2203.712	0.75591	-1.62950	96.08977
53538	494129.906	6719814.068	2202.376	-1.67770	-0.93270	93.86586
53539	493676.394	6719789.192	2204.640	-1.63000	-1.39290	88.81387
53540	493202.034	6719791.022	2201.111	-0.27866	-0.77300	86.98891
53541	492732.601	6719805.108	2206.378	-0.52774	-0.54314	89.30898
53542	492276.274	6719820.437	2206.965	0.19130	-1.53975	89.19735
53543	491825.675	6719834.073	2207.219	-0.48113	-0.63969	89.43141
53544	491401.482	6719847.100	2208.487	0.32264	-1.60520	89.35285
53545	490977.776	6719857.586	2204.328	1.54495	-0.90422	90.15973
53546	490488.469	6719861.630	2207.133	0.47067	-1.22809	90.77083
53547	490022.119	6719861.104	2204.910	0.29482	-0.80710	90.81537
53548	489521.195	6719855.897	2206.283	0.22138	-1.62760	91.92333
53549	489048.430	6719846.846	2202.745	-1.57096	-0.56967	91.97324
53550	488579.100	6719840.635	2207.352	-0.20811	-1.03657	91.63838
53551	488119.302	6719835.095	2204.495	-0.15284	-1.26970	91.18253
53552	487661.480	6719831.246	2205.678	-0.51466	-0.37466	91.26338
53553	487183.310	6719828.274	2207.338	-0.32968	-1.51338	91.54183
53554	486692.821	6719826.943	2206.673	0.04731	-0.63705	91.08102
53555	486237.661	6719828.029	2211.578	-1.53465	-1.42917	89.86696
53556	485769.829	6719834.881	2206.614	-0.83163	-1.69384	89.17593
53557	485329.012	6719845.344	2204.384	-0.83630	-0.82296	88.82473
53558	484866.552	6719859.994	2201.290	-0.72689	-1.21014	89.50617
53559	484405.954	6719876.013	2201.366	-0.63699	-0.37384	88.84540
53560	483939.335	6719893.707	2205.062	-0.31981	-0.88775	88.60690
53561	483497.221	6719908.374	2208.727	0.45742	-0.77959	88.15887
53562	483059.711	6719916.620	2208.398	0.71370	-1.57382	89.04921

53563	482635.068	6719920.058	2202.551	-0.36266	-0.74517	90.48758
53564	482165.856	6719923.182	2205.470	-0.43569	-0.66798	90.83744
53565	481703.311	6719924.842	2203.907	1.62368	-0.86515	91.14675
53566	481284.489	6719918.594	2206.799	0.84826	-0.30016	91.74266
53567	480831.970	6719903.775	2206.126	0.47638	-1.50534	93.13240
53568	480373.090	6719883.537	2203.293	0.10643	-0.31071	94.03787
53569	479948.389	6719864.648	2206.726	-0.17528	-0.74766	93.79466
53570	479529.398	6719845.686	2208.196	-0.53848	-0.85989	93.02520
53571	479071.723	6719826.985	2208.704	-1.62573	-0.86372	90.71821
53572	478621.987	6719817.453	2206.228	0.04460	-0.95757	90.67588
53573	478154.288	6719814.644	2209.349	-0.12506	-0.79473	89.79911
53574	477732.405	6719817.383	2206.041	-0.56645	-1.54520	89.04986
53575	477316.859	6719824.169	2205.438	-0.09639	-0.22569	88.99340
53576	476870.377	6719834.470	2208.490	0.45361	-1.13656	88.19731
53577	480348.436	6722703.596	2206.991	-1.49999	0.95122	-88.66880
53578	480843.796	6722704.558	2205.778	-0.51104	1.44940	-87.04880
53579	481295.713	6722710.910	2202.615	0.58866	0.36522	-86.61924
53580	481758.986	6722718.602	2206.575	-0.01499	0.94303	-86.66385
53581	482219.785	6722727.532	2204.639	0.52218	1.07245	-86.69785
53582	482696.672	6722736.937	2208.340	0.10650	0.39955	-86.68683
53583	483166.927	6722746.957	2208.834	0.86483	1.79454	-86.98589
53584	483619.146	6722754.146	2206.239	0.73736	0.58695	-86.66775
53585	484124.635	6722759.269	2209.350	0.87766	1.75098	-87.63725
53586	484574.722	6722760.762	2205.456	1.34909	1.27019	-88.67581
53587	485056.885	6722757.561	2205.119	1.44802	0.90566	-89.08066
53588	485533.140	6722749.841	2202.933	1.02106	1.39332	-88.93483
53589	485997.410	6722738.470	2201.778	0.79685	0.42539	-89.60346
53590	486464.485	6722725.166	2207.393	0.37438	0.73192	-88.87564
53591	486896.389	6722714.560	2204.676	-0.11665	0.97306	-88.83042
53592	487354.370	6722709.104	2209.314	-0.50594	0.35337	-87.52783
53593	487867.452	6722710.295	2209.048	-0.71336	1.79035	-87.30739
53594	488350.848	6722717.995	2208.090	-0.50498	0.84909	-87.12700
53595	488816.404	6722731.324	2203.986	0.39256	1.78300	-85.86290
53596	489296.681	6722749.009	2202.981	-0.22085	0.33405	-85.43885
53597	489723.726	6722768.689	2206.531	0.81117	1.25288	-84.66875
53598	490188.655	6722789.118	2204.318	0.45266	0.57495	-85.30005
53599	490627.999	6722806.136	2209.486	0.80364	0.57449	-85.61602
53600	491058.949	6722819.822	2208.100	2.75785	1.44070	-86.31041
53601	491530.766	6722827.155	2209.262	1.41467	0.34329	-86.83650

53602	491964.888	6722828.754	2211.709	2.03168	1.16550	-88.45769
53603	492434.137	6722822.617	2209.520	1.63606	1.30063	-89.13832
53604	492887.350	6722811.470	2208.420	0.45992	0.75968	-89.78925
53605	493362.366	6722796.617	2206.292	1.17801	1.65041	-89.69999
53606	493871.608	6722776.627	2204.911	1.37168	0.23415	-89.85070
53607	494344.927	6722753.952	2207.147	1.08422	1.30965	-90.59540
53608	494846.889	6722728.349	2205.960	-0.00361	0.26396	-90.88964
53609	495352.964	6722708.315	2208.202	-0.83034	1.41915	-89.33727
53610	495842.037	6722699.009	2205.788	-1.78810	0.51540	-88.31145
53611	496282.563	6722702.176	2209.434	-0.38953	1.14396	-87.42201
53612	496760.723	6722714.684	2204.314	0.99812	1.60788	-86.18214
53613	497216.834	6722730.051	2201.554	0.93223	0.40199	-85.09875
53614	497697.204	6722743.353	2204.929	2.12004	0.79605	-85.89142
53615	498178.289	6722749.487	2205.558	1.94108	0.43069	-86.68679
53616	498653.575	6722748.455	2211.405	1.55587	0.65041	-87.58185
53617	499126.402	6722743.574	2208.708	-0.45657	1.08144	-87.93959
53618	499580.792	6722742.609	2208.868	0.34465	0.56675	-87.60220
53619	500079.610	6722744.602	2208.590	0.22019	1.16679	-87.18866
53620	500551.193	6722749.065	2210.681	0.32819	0.72527	-87.64168
53621	501028.479	6722756.547	2211.645	-0.42552	1.68684	-87.15819
53622	501510.068	6722769.543	2207.618	-0.37194	1.38648	-87.07374
53623	501971.509	6722786.966	2206.487	0.69624	1.15554	-86.02595
53624	502459.027	6722805.621	2201.787	1.77486	1.49457	-86.45902
53625	502980.648	6722818.984	2203.672	2.01479	0.38331	-87.71997
53626	503487.984	6722827.656	2205.494	0.72654	1.22998	-87.80477
53627	503949.241	6722833.330	2205.546	0.68696	0.44368	-87.12258
53628	504423.338	6722835.662	2208.692	0.04174	0.90890	-88.98768
53629	504892.710	6722834.059	2209.771	0.69025	0.87788	-88.95479
53630	505355.347	6722831.305	2209.071	1.18872	1.47093	-89.55567
53631	505819.018	6722826.954	2208.864	0.77706	0.77429	-89.45259
53632	506298.525	6722821.955	2208.718	0.27160	1.74364	-89.82867
53633	506793.636	6722817.522	2206.000	0.70622	0.67998	-90.43837
53634	507292.786	6722813.660	2202.128	1.34446	1.56478	-89.10205
53635	507741.609	6722809.153	2200.930	1.05131	0.06654	-88.48952
53636	508232.295	6722802.274	2206.111	0.72305	0.99530	-88.91865
53637	508724.774	6722793.748	2206.961	1.25393	0.38785	-89.96496
53638	509219.896	6722782.597	2210.389	0.78961	1.30599	-89.82257
53639	509691.504	6722771.172	2205.794	0.21943	0.81863	-89.78370
53640	510141.838	6722760.732	2206.831	1.23970	0.70876	-88.64318

53641	510618.219	6722747.744	2206.393	0.42881	0.89760	-88.85112
53642	510303.969	6724146.700	2208.802	-2.19421	-1.31652	93.75657
53643	509832.847	6724126.225	2207.792	-1.09133	-1.06543	91.79018
53644	509378.949	6724116.489	2212.420	-0.41547	-1.01529	90.01341
53645	508951.861	6724112.507	2210.002	-1.10683	-1.88569	89.47621
53646	508502.359	6724116.293	2207.270	-0.72363	-0.69722	88.04710
53647	508048.428	6724126.630	2205.985	-0.60316	-1.75489	88.20814
53648	507629.615	6724140.299	2203.324	0.08538	-0.69150	87.47536
53649	507154.720	6724156.667	2207.234	0.59014	-1.28778	87.86740
53650	506711.781	6724167.200	2204.312	0.63172	-1.36225	88.57529
53651	506295.807	6724173.254	2206.135	1.12074	-0.58829	88.87990
53652	505906.110	6724175.184	2206.014	0.68706	-1.52184	89.12246
53653	505480.374	6724174.653	2203.907	0.55805	-0.67313	89.66927
53654	505042.833	6724171.302	2206.716	0.39737	-0.99990	90.76710
53655	504622.454	6724166.648	2204.534	-0.16724	-1.04422	91.27748
53656	504124.114	6724161.987	2209.241	0.29915	-0.61764	90.31376
53657	503685.244	6724159.277	2204.246	0.08073	-1.19828	91.63045
53658	503261.450	6724159.829	2205.188	-1.21084	-0.07821	91.48203
53659	502838.345	6724165.894	2210.656	0.20189	-0.54624	90.24021
53660	502431.464	6724174.075	2211.232	0.59561	-1.35277	88.97742
53661	502001.303	6724181.679	2211.501	0.06412	-0.84694	89.61708
53662	501526.802	6724187.913	2210.678	0.50067	-1.66264	89.39378
53663	501115.791	6724191.850	2204.791	0.39290	-1.07710	89.97529
53664	500697.328	6724196.176	2204.235	0.13890	-0.74406	90.27436
53665	500259.331	6724201.935	2201.187	-0.05067	-0.72091	89.75853
53666	499862.531	6724208.279	2206.351	0.49983	0.06093	89.74066
53667	499417.644	6724214.260	2210.791	0.73963	-1.17051	89.19547
53668	498974.106	6724217.497	2207.178	1.27477	-1.08479	90.55779
53669	498562.890	6724219.005	2208.908	0.31411	-0.62210	90.31130
53670	498118.253	6724222.063	2211.279	-0.41965	-1.24956	89.72726
53671	497681.813	6724226.096	2210.977	0.66926	-1.16607	89.51629
53672	497251.982	6724228.160	2211.980	0.83175	-1.37865	89.15212
53673	496821.003	6724227.992	2207.781	0.42253	-1.82509	89.46260
53674	496378.519	6724225.975	2205.857	0.47159	-0.67766	90.17973
53675	495920.762	6724222.421	2204.917	0.27445	-1.51542	90.31495
53676	495472.207	6724219.533	2203.668	0.04305	-0.58422	89.97672
53677	495001.984	6724217.561	2209.813	0.33201	-1.08868	89.64568
53678	494530.152	6724214.439	2207.097	0.70123	-1.35212	89.61623
54569	480901.683	6686253.669	2233.726	-1.54313	0.61002	4.53299

54570	480897.986	6686739.673	2230.990	-0.46348	-0.70850	5.08245
54571	480890.171	6687206.671	2235.656	-1.39672	0.59550	5.12578
54572	480881.428	6687709.285	2230.805	-1.02187	0.73322	5.37705
54573	480875.291	6688162.827	2234.659	-0.82004	-0.48171	4.95171
54574	480868.854	6688633.055	2231.069	-1.60240	0.53461	4.35584
54575	480864.356	6689093.358	2233.213	-0.53323	0.33299	4.56236
54576	480860.893	6689554.071	2232.095	-1.67157	0.67180	4.19147
54577	480862.531	6690018.318	2233.048	-0.39455	0.23332	3.31900
54578	480867.323	6690494.198	2234.533	-1.63341	0.60757	3.38521
54579	480875.663	6690962.924	2230.894	-0.71862	0.12747	2.77986
54580	480886.030	6691433.809	2235.140	-1.10178	0.68559	2.71323
54581	480897.850	6691859.382	2232.925	-1.63733	0.02776	2.18838
54582	480910.747	6692317.020	2232.896	-0.55051	-0.24900	2.50857
54583	480920.010	6692746.456	2233.236	-1.46280	-1.32269	2.88623
54584	480923.151	6693211.430	2230.998	-0.74731	0.50686	3.58020
54585	480924.380	6693658.140	2235.900	-1.20489	-0.41434	3.91675
54586	480922.382	6694176.620	2232.524	-1.44951	-0.94345	4.02232
54587	480917.080	6694632.745	2234.991	-1.13967	0.55163	4.10756
54588	480912.717	6695057.887	2232.028	-1.87576	-0.32038	4.20746
54589	480906.054	6695547.649	2231.479	-0.57917	-0.68050	4.24589
54590	480895.981	6696015.649	2232.347	-1.64576	0.23917	4.81670
54591	480886.530	6696440.851	2229.149	-1.03240	-0.23859	4.59567
54592	480875.405	6696917.551	2232.729	-1.03602	2.02797	4.60194
54593	480870.083	6697359.530	2230.944	-1.13893	0.15825	4.03112
54594	480866.997	6697817.490	2234.252	-0.51584	0.47617	3.41897
54595	480866.756	6698282.702	2235.121	-1.75144	0.18348	3.52177
54596	480868.558	6698759.664	2233.133	-0.64568	0.50642	2.72091
54597	480873.965	6699215.618	2236.756	-1.53323	0.64851	2.78207
54598	480882.460	6699677.164	2231.769	-1.44774	-0.08320	2.23517
54599	480890.832	6700143.768	2233.814	-0.75940	-0.08997	2.66537
54600	480897.593	6700632.761	2231.090	-1.80751	0.23943	2.59753
54601	480905.314	6701102.785	2229.933	-0.36998	0.47372	2.34886
54602	480916.753	6701593.326	2233.186	-1.40840	0.29232	2.32048
54603	480928.053	6702046.112	2231.262	-0.75591	0.71781	2.19589
54604	480937.440	6702498.612	2232.240	-0.75524	0.09503	3.02211
54605	480940.021	6702946.233	2231.092	-0.65886	-0.04317	3.86549
54606	480939.933	6703418.127	2237.194	-0.25379	-0.54232	3.62110
54607	480938.537	6703890.188	2237.829	-1.81074	0.46042	3.81118
54608	480936.217	6704377.842	2233.458	-0.54708	0.53638	4.03785

54609	480933.756	6704828.411	2234.643	-1.11049	-0.41632	4.08245
54610	480929.253	6705291.288	2233.488	-0.61763	0.47023	4.27429
54611	480925.552	6705738.725	2238.590	-1.06197	-0.01217	3.96965
54612	480921.256	6706208.577	2234.785	-1.61517	0.12587	4.35533
54613	480915.778	6706679.995	2235.488	-0.58705	0.02530	4.27299
54614	480909.403	6707144.908	2233.845	-1.76863	0.15665	4.56857
54615	480902.994	6707615.915	2232.665	-0.40274	0.74809	4.31991
54616	480898.540	6708096.030	2235.633	-1.52462	-0.35527	4.61661
54617	480893.013	6708550.732	2233.070	-0.98235	0.41160	4.34610
54618	480888.277	6709019.057	2236.164	-1.18140	0.07251	4.67328
54619	480885.104	6709473.396	2232.296	-1.43770	0.61193	3.75927
54620	480886.497	6709961.164	2235.215	-0.64351	1.12072	3.72504
54621	480891.643	6710441.726	2233.653	-1.45118	0.16783	3.39831
54622	480898.500	6710912.102	2234.482	-0.35967	0.24264	2.96930
54623	480905.603	6711382.790	2234.833	-1.61866	0.55899	3.51268
54624	480913.826	6711853.727	2231.560	-0.34876	-0.33777	3.20890
54625	480923.464	6712359.323	2235.564	-1.17092	0.28061	2.94981
54626	480933.096	6712807.732	2233.738	-0.79607	0.33787	3.31887
54627	480944.466	6713289.511	2237.591	-0.92943	-0.11435	3.11081
54628	485312.660	6714004.928	2236.464	1.13194	0.35235	176.50877
54629	485303.862	6713494.147	2240.166	1.04632	0.28170	176.30636
54630	485296.710	6712978.516	2237.691	2.03636	0.80890	176.90523
54631	485294.304	6712443.943	2236.626	1.18153	0.91996	177.28117
54632	485297.323	6711933.276	2233.615	2.25223	0.38589	178.11665
54633	485302.061	6711504.998	2230.625	1.13131	0.31922	178.07978
54634	485308.770	6710995.712	2232.517	1.62388	0.09490	178.39789
54635	485314.930	6710466.303	2228.122	1.29833	-1.08514	177.66342
54636	485315.032	6709929.566	2232.512	0.60837	-0.87670	177.29278
54637	485309.814	6709426.254	2231.887	1.53532	-0.38662	176.63451
54638	485301.359	6708975.410	2233.367	0.50459	-0.43110	176.16238
54639	485289.245	6708473.646	2237.155	1.49353	0.45644	175.97790
54640	485277.848	6707971.900	2234.141	1.30728	-0.14689	176.25401
54641	485266.764	6707463.996	2236.718	1.24825	0.69906	176.75677
54642	485258.007	6706955.797	2234.170	1.98387	-0.58518	177.06157
54643	485246.453	6706420.174	2231.936	0.60933	0.05146	176.79591
54644	485235.810	6705906.137	2232.957	1.71254	-0.36186	177.43286
54645	485227.394	6705466.579	2229.116	1.04777	1.07151	177.43903
54646	485221.116	6704940.694	2232.701	0.92576	-0.19066	177.90070
54647	485216.469	6704442.668	2231.318	1.15875	0.24562	178.30678

54648	485213.767	6703990.113	2234.172	0.43587	0.02958	178.47661
54649	485212.240	6703535.205	2233.260	1.73025	0.44167	178.55983
54650	485212.956	6702984.635	2231.459	0.38109	0.01512	178.55764
54651	485214.355	6702482.379	2238.300	1.01655	0.45245	179.12974
54652	485218.358	6701977.243	2238.351	1.55818	-0.70806	179.56372
54653	485219.971	6701516.260	2233.520	1.79343	-0.35963	178.77998
54654	485218.890	6701085.345	2229.292	0.95700	-0.75340	178.48703
54655	485215.313	6700607.304	2231.363	0.72434	0.43293	178.16741
54656	485212.735	6700068.773	2231.845	1.39174	-0.39157	178.64019
54657	485210.252	6699564.530	2230.954	0.71737	0.22844	178.53655
54658	485209.314	6699119.099	2233.217	0.77957	0.08040	178.68596
54659	485209.633	6698642.971	2231.967	1.45386	-0.20932	178.63542
54660	485209.512	6698141.669	2230.200	0.57496	0.34080	178.62179
54661	485210.445	6697711.708	2232.094	0.78630	-0.36880	178.68822
54662	485211.190	6697232.032	2229.916	0.87939	0.22237	178.63400
54663	485212.925	6696726.524	2231.877	0.19399	-0.19564	178.62601
54664	485214.348	6696197.070	2233.788	1.15013	-0.14800	178.38492
54665	485215.566	6695695.104	2233.469	0.19994	0.43027	178.66983
54666	485219.117	6695201.866	2237.321	1.04546	-0.40243	178.76839
54667	485222.722	6694679.015	2233.577	1.01828	0.44517	179.10097
54668	485227.460	6694255.840	2235.305	0.46296	-0.38874	179.27325
54669	485231.825	6693751.338	2232.934	1.60227	0.01822	178.83865
54670	485235.889	6693234.120	2230.961	-0.10048	-1.14835	178.67308
54671	485236.793	6692749.369	2233.999	1.08807	0.36925	178.32046
54672	485237.485	6692307.248	2232.214	0.72481	-0.40212	177.91404
54673	485237.997	6691850.540	2236.769	0.33029	0.52092	178.48874
54674	485241.189	6691416.859	2237.526	1.68593	0.56298	178.58930
54675	485247.853	6690915.007	2233.877	0.67438	-0.44427	179.17931
54676	485254.469	6690416.932	2236.372	1.19879	0.20751	178.99101
54677	485261.680	6689911.090	2233.403	1.28350	-0.43618	179.36751
54678	485266.803	6689398.027	2235.263	0.66467	-0.69228	178.68453
54679	482350.860	6688472.416	2232.215	-1.26023	-0.27352	1.78361
54680	482369.187	6688952.214	2232.620	-0.29147	0.63008	2.16524
54681	482383.891	6689406.696	2235.515	-1.30164	0.75351	2.94373
54682	482394.265	6689804.771	2232.168	-0.81454	-1.05131	3.43949
54683	482399.869	6690223.696	2235.079	-0.64959	-0.30154	3.50310
54684	482402.095	6690677.641	2234.903	-1.44702	0.04046	4.56946
54685	482397.973	6691135.515	2236.080	-0.50350	-0.47823	5.63103
54686	482388.521	6691589.362	2234.475	-1.88346	-0.26481	5.66537

54687	482375.488	6692063.897	2230.582	-0.38808	-0.04989	5.99202
54688	482360.847	6692515.109	2232.419	-1.31058	1.20852	4.93493
54689	482349.441	6692974.235	2231.459	-0.68492	0.28778	4.68139
54690	482340.690	6693433.134	2236.528	-0.89996	0.54612	4.66242
54691	482334.724	6693885.827	2233.673	-1.28330	0.82050	4.50183
54692	482333.783	6694331.538	2235.558	-0.53404	-0.17591	3.71150
54693	482336.522	6694790.878	2235.174	-1.83151	0.51486	3.05592
54694	482343.258	6695252.248	2234.049	-0.55939	-0.20763	2.88508
54695	482351.066	6695712.748	2236.161	-1.86853	0.10054	2.61428
54696	482359.593	6696156.219	2230.225	-1.43139	1.00166	3.58849
54697	482367.108	6696594.526	2231.863	-0.80480	0.00300	3.17508
54698	482374.276	6697065.401	2230.265	-1.54994	-1.44120	3.18921
54699	482374.389	6697531.053	2232.755	-0.65762	0.23144	4.03420
54700	482370.601	6697992.001	2231.441	-1.67597	0.13799	4.48322
54701	482365.593	6698453.713	2230.385	-0.52421	-0.09079	4.22970
54702	482359.288	6698936.823	2232.705	-1.38755	0.62188	4.30745
54703	482354.220	6699402.633	2230.030	-0.64194	-0.95413	3.39348
54704	482348.447	6699868.403	2234.528	-1.07624	0.14459	3.84469
54705	482344.502	6700344.165	2231.706	-0.98137	0.84228	3.45074
54706	482346.487	6700792.164	2235.275	-0.59281	0.02520	2.93572
54707	482350.776	6701247.416	2234.315	-1.61541	-0.43138	2.83287
54708	482354.096	6701716.534	2234.511	-0.57991	0.70174	3.48603
54709	482357.058	6702181.572	2236.514	-1.65006	1.23897	4.42845
54710	482358.997	6702650.670	2230.843	-0.96278	0.20521	4.34595
54711	482359.283	6703132.813	2234.285	-0.99513	-0.17449	4.66057
54712	482357.393	6703594.280	2230.464	-1.34281	0.81542	4.66340
54713	482356.997	6704079.363	2234.318	-0.47756	0.11941	4.64915
54714	482355.920	6704520.726	2235.173	-1.86084	0.46860	4.68028
54715	482355.321	6704968.005	2233.607	-0.67043	0.41505	4.41809
54716	482355.014	6705399.855	2236.506	-1.57159	-0.49919	4.64374
54717	482350.436	6705863.555	2232.020	-1.41225	0.74179	4.85271
54718	482345.441	6706349.555	2234.479	-1.04148	0.34097	5.07510
54719	482343.156	6706822.777	2231.389	-1.59989	0.41182	4.32907
54720	482345.782	6707301.123	2232.734	-0.55480	1.02094	3.74065
54721	482351.823	6707778.172	2234.497	-1.49525	0.65602	4.00737
54722	482358.598	6708232.215	2230.462	-1.05728	0.43156	3.53858
54723	482366.551	6708714.379	2232.022	-0.58723	0.20850	3.65666
54724	482372.663	6709185.909	2231.725	-1.23725	0.88058	4.06878
54725	482379.927	6709673.536	2233.971	-0.45981	-0.30360	3.77132

54726	482382.782	6710149.263	2238.409	-1.20885	-0.20619	4.48599
54727	482381.703	6710621.040	2236.574	-1.57112	0.34308	4.56401
54728	482379.348	6711103.271	2231.281	-1.47235	0.27614	4.99391
54729	482375.793	6711584.171	2231.104	-0.56580	0.21563	4.92439
54730	482371.348	6712063.578	2231.655	-1.35852	0.01089	5.49447
54731	482365.123	6712531.564	2230.922	-0.56420	0.59926	5.43198
54732	482359.993	6713022.001	2236.229	-0.90953	0.01481	5.39910
54733	486722.128	6714311.197	2235.276	1.99359	1.78407	175.82348
54734	486717.010	6713777.965	2235.825	0.86505	0.83696	177.66788
54735	486719.624	6713271.067	2234.160	2.16091	1.25940	178.35616
54736	486725.254	6712851.278	2230.496	1.07027	-1.00116	178.31936
54737	486728.666	6712358.778	2233.590	1.07587	-0.05881	178.12342
54738	486730.658	6711851.843	2230.953	1.68924	-0.30232	177.99159
54739	486729.945	6711419.957	2230.696	0.41802	-0.67681	177.55145
54740	486724.530	6710940.349	2235.357	1.21667	-0.68377	176.67860
54741	486715.258	6710482.091	2233.129	1.43517	-0.05906	176.40167
54742	486704.702	6710013.920	2234.356	0.55552	0.07591	176.31829
54743	486695.130	6709568.948	2235.799	1.56354	0.72026	177.02911
54744	486687.583	6709088.874	2230.761	1.06408	0.09319	177.21860
54745	486682.721	6708611.286	2233.340	0.60429	0.53350	177.69220
54746	486681.468	6708171.881	2233.962	1.51927	-0.38080	177.84719
54747	486679.886	6707715.573	2231.010	0.92017	-0.03632	177.68218
54748	486678.592	6707245.079	2234.805	0.80628	-0.09728	178.00204
54749	486677.997	6706803.405	2233.925	1.80222	-0.31754	178.14906
54750	486676.365	6706341.363	2230.871	0.71523	-0.93531	177.91478
54751	486671.099	6705877.557	2233.418	0.83112	-0.54321	177.45406
54752	486663.523	6705400.581	2232.339	1.20226	-0.11561	177.37198
54753	486656.144	6704929.279	2233.889	0.52452	1.34165	177.42081
54754	486654.192	6704481.478	2237.058	1.21094	-0.19073	178.31430
54755	486655.811	6704025.060	2234.722	1.41650	1.10098	178.75297
54756	486662.045	6703554.507	2237.327	0.81989	0.45365	178.95768
54757	486672.383	6703072.788	2237.488	1.95947	-0.00701	179.74318
54758	486685.861	6702558.432	2231.253	1.49650	0.46539	179.89414
54759	486700.442	6702077.668	2231.220	0.70242	-0.62394	179.90961
54760	486711.800	6701636.156	2230.443	1.49845	0.58297	178.59849
54761	486722.329	6701120.173	2229.523	0.41818	-0.00690	178.54777
54762	486729.197	6700680.245	2233.026	0.48013	-1.19070	178.26531
54763	486731.905	6700125.499	2231.487	0.73985	0.04311	177.52557
54764	486731.924	6699703.241	2233.624	0.22989	-0.36639	177.26254

54765	486730.473	6699244.260	2234.639	1.07524	0.31565	177.39759
54766	486728.848	6698726.221	2235.159	0.44253	0.12387	177.20306
54767	486726.493	6698233.847	2238.613	1.06414	0.35903	177.29911
54768	486724.377	6697766.697	2235.310	1.56377	-0.03336	177.13668
54769	486720.979	6697315.176	2235.378	0.48658	0.22586	177.04890
54770	486717.530	6696837.126	2238.237	1.63107	0.26207	177.05812
54771	486713.795	6696309.269	2234.330	1.51154	-0.11638	176.98123
54772	486708.919	6695801.779	2235.373	1.00044	0.36224	176.90802
54773	486705.393	6695374.521	2234.574	1.82320	0.08435	176.98547
54774	486701.188	6694876.655	2231.670	1.13230	0.09268	176.93247
54775	486696.560	6694398.949	2235.318	1.15758	0.44324	176.98954
54776	486693.655	6693938.469	2232.844	1.86137	0.43233	177.41624
54777	486692.172	6693451.403	2230.791	0.67208	0.20468	177.53515
54778	486691.766	6692948.273	2234.866	1.27876	0.44038	177.79692
54779	486692.867	6692460.497	2232.737	1.74583	0.20032	177.80954
54780	486693.702	6692013.938	2233.669	0.73743	0.22059	177.74306
54781	486694.529	6691548.731	2237.184	1.59644	0.04679	177.70841
54782	486694.836	6691077.420	2233.985	1.83165	-0.04037	177.68960
54783	486693.965	6690580.339	2235.538	0.88375	-0.11184	177.37993
54784	486691.619	6690100.729	2235.383	2.10975	0.17827	177.26490
54785	486689.211	6689635.744	2232.786	1.31864	0.52209	177.61108
54786	483762.527	6688516.892	2235.352	-0.32043	0.72566	2.78278
54787	483777.287	6688993.153	2237.317	-1.42371	0.10331	1.98842
54788	483794.932	6689427.666	2237.763	-0.44046	-0.74804	1.93377
54789	483812.855	6689899.755	2237.881	-1.79358	-0.04097	2.30048
54790	483831.295	6690364.810	2234.233	-0.60059	0.71593	2.16508
54791	483849.498	6690757.680	2237.815	-1.18770	-0.48800	1.71555
54792	483867.259	6691234.053	2234.448	-1.70927	0.00979	2.89488
54793	483878.302	6691685.315	2232.491	-0.98773	-0.84085	5.30079
54794	483877.575	6692162.137	2234.423	-0.86526	-1.19593	6.33021
54795	483866.193	6692636.783	2232.022	-1.51438	-0.53249	6.84692
54796	483847.738	6693111.961	2232.805	-0.54341	-0.03306	7.83963
54797	483824.901	6693582.509	2233.222	-1.79982	2.08433	7.94358
54798	483806.972	6694060.848	2232.147	-0.44759	1.35338	7.18866
54799	483795.405	6694521.056	2236.513	-1.02360	-0.16797	5.99280
54800	483786.050	6694964.500	2234.002	-1.11322	0.53577	6.06648
54801	483778.875	6695445.500	2237.785	-0.93597	0.51481	5.71552
54802	483776.527	6695885.542	2234.480	-1.79781	0.54803	4.80612
54803	483777.362	6696364.767	2232.497	-0.40624	0.10961	4.54930

54804	483778.775	6696805.894	2235.381	-1.38307	0.50750	4.36302
54805	483783.362	6697268.295	2233.285	-0.80353	0.42987	4.00502
54806	483789.708	6697692.695	2237.210	-1.17636	-0.08871	4.14034
54807	483796.977	6698178.374	2234.243	-1.56426	0.30432	3.97378
54808	483803.892	6698670.244	2232.349	-0.33048	-1.16798	4.24692
54809	483802.879	6699140.090	2235.065	-1.62798	0.05354	4.97250
54810	483798.154	6699632.916	2231.965	-0.50403	-0.03430	5.17358
54811	483791.341	6700115.002	2235.561	-1.72103	0.31543	5.49315
54812	483784.727	6700614.220	2232.630	-0.48178	-0.02493	5.27651
54813	483777.486	6701102.550	2235.912	-1.49685	0.00967	5.42514
54814	483769.015	6701593.112	2232.078	-0.67297	0.36026	5.32783
54815	483761.817	6702070.971	2236.596	-0.95797	0.49341	5.21855
54816	483756.848	6702553.542	2233.745	-1.22596	0.65968	4.79809
54817	483755.389	6703011.127	2236.737	-0.62908	0.66876	4.53871
54818	483755.698	6703478.207	2236.853	-1.56939	0.04108	4.64131
54819	483755.788	6703985.871	2234.756	-0.95031	0.60963	4.65385
54820	483758.472	6704464.925	2235.458	-1.29916	0.38672	4.33953
54821	483762.546	6704933.360	2231.419	-1.04996	0.32201	4.26146
54822	483768.137	6705403.096	2234.715	-0.61968	0.67166	3.93269
54823	483776.848	6705908.255	2233.664	-1.20197	0.19968	3.81597
54824	483785.373	6706410.296	2236.770	-0.51194	0.12935	3.96611
54825	483793.260	6706910.815	2234.593	-1.54384	0.63073	3.86808
54826	483803.723	6707392.230	2235.221	-0.35369	0.69284	3.42145
54827	483817.059	6707865.073	2234.420	-1.50071	-1.56483	3.43885
54828	483824.646	6708349.907	2235.708	-0.20340	-0.63393	4.18829
54829	483826.629	6708819.819	2237.398	-1.58992	0.19762	5.06585
54830	483826.019	6709292.708	2232.260	-0.60856	-0.44212	5.09872
54831	483823.143	6709751.547	2235.801	-0.88985	0.36657	5.38905
54832	483820.105	6710225.134	2233.471	-0.89692	-0.06052	5.25941
54833	483815.075	6710707.468	2238.876	-0.74953	-0.32828	5.63480
54834	483806.277	6711180.930	2235.125	-1.64052	0.10533	5.93801
54835	483799.011	6711654.694	2235.536	-0.29383	-0.26771	5.26463
54836	483794.514	6712142.345	2235.229	-1.64073	0.73224	5.07948
54837	483792.634	6712629.435	2236.107	-0.22022	0.12747	5.07469
54838	483790.772	6713113.611	2238.068	-1.69169	0.03055	5.05577
54839	483788.050	6713593.924	2235.142	-0.65117	0.50590	5.19784
54840	483786.801	6714066.071	2237.082	-1.59856	0.17657	5.14358
54841	483786.100	6714556.049	2233.889	-0.69611	0.59975	5.23125
54842	488146.512	6714394.462	2240.830	0.58593	-0.52216	178.66567

54843	488154.823	6713885.582	2238.042	1.71875	-0.81113	178.42493
54844	488160.085	6713401.655	2238.346	0.66058	-0.59239	178.11057
54845	488163.758	6712923.080	2237.980	1.72349	-0.19584	178.08620
54846	488167.960	6712427.593	2233.903	0.57709	-0.38415	178.16735
54847	488172.314	6711959.817	2234.441	1.15592	-0.06797	178.57797
54848	488178.647	6711457.198	2231.375	1.07157	0.19666	178.95022
54849	488187.329	6710970.705	2235.288	0.48575	-0.28264	179.11488
54850	488196.745	6710482.712	2235.513	1.51618	-0.34382	179.10379
54851	488205.189	6709996.134	2234.948	0.54067	-0.94613	178.87457
54852	488210.034	6709584.806	2238.869	0.90898	-0.22759	178.76045
54853	488214.192	6709139.838	2236.717	1.65442	-1.34349	176.94283
54854	488211.616	6708695.604	2235.555	0.39600	-1.20657	175.95030
54855	488203.634	6708262.310	2238.579	1.21442	0.68480	176.01916
54856	488193.058	6707770.484	2235.861	1.67158	0.09428	175.65776
54857	488182.050	6707322.340	2234.598	0.62042	-0.07932	175.61603
54858	488169.248	6706843.093	2236.569	1.22085	0.44448	175.57643
54859	488157.062	6706399.301	2233.122	1.37782	-0.27836	175.65778
54860	488141.084	6705891.398	2233.006	0.55449	1.08183	175.28673
54861	488128.063	6705379.823	2237.249	1.14490	0.58747	175.85912
54862	488120.074	6704947.427	2234.022	1.60751	1.12510	176.31061
54863	488115.111	6704459.390	2235.573	0.24501	0.18473	176.73061
54864	488111.557	6703976.936	2236.537	1.67255	0.87935	176.82973
54865	488109.873	6703512.632	2233.605	0.66356	0.02836	176.82140
54866	488107.514	6703029.973	2235.219	0.84434	0.16105	176.92634
54867	488104.228	6702554.514	2230.686	0.98772	-0.09184	176.64295
54868	488098.847	6702081.283	2233.285	0.13912	0.85009	176.53818
54869	488096.263	6701582.788	2236.208	1.24058	1.18375	177.12012
54870	488097.966	6701070.007	2234.937	0.60061	0.73805	177.53097
54871	488102.323	6700545.467	2238.019	0.97272	0.43732	177.81259
54872	488107.543	6700060.860	2235.113	1.33559	0.27730	177.83312
54873	488112.531	6699557.642	2237.778	0.54868	-0.28275	177.89408
54874	488114.654	6699131.732	2237.543	1.75078	-0.20513	177.56895
54875	488113.752	6698629.872	2233.776	0.86171	-0.15982	177.23800
54876	488110.278	6698150.613	2237.249	1.10073	0.26184	176.89667
54877	488106.745	6697701.859	2234.416	1.57553	0.42693	177.01842
54878	488104.022	6697225.208	2234.962	0.44400	0.36662	177.04063
54879	488102.314	6696750.970	2236.475	1.75364	0.67752	177.20547
54880	488102.104	6696281.934	2232.640	1.06776	-0.00730	177.42729
54881	488101.421	6695822.170	2236.489	0.75314	0.39771	177.52475

54882	488101.025	6695368.889	2236.175	1.81585	-0.02136	177.55269
54883	488099.655	6694927.181	2232.731	0.88126	-0.20461	177.36417
54884	488096.022	6694484.325	2236.446	0.83615	-0.16863	176.90266
54885	488090.328	6693988.820	2236.647	1.76499	1.98196	177.19080
54886	488090.317	6693547.994	2238.349	0.97840	0.00066	177.91351
54887	488091.742	6693074.228	2238.381	2.18374	0.64239	178.40076
54888	488094.989	6692593.135	2231.696	1.68903	0.14424	178.43528
54889	488098.486	6692117.497	2232.981	0.93913	0.45960	178.59876
54890	488102.580	6691613.536	2231.724	1.74651	-0.16410	178.24200
54891	488103.772	6691115.351	2231.728	0.50178	-0.09777	178.04167
54892	488102.951	6690705.297	2236.399	1.15634	0.16536	178.00504
54893	490961.834	6693218.122	2243.401	-1.81883	0.21484	1.72946
54894	490978.159	6693711.268	2236.627	-1.10940	0.09949	2.02474
54895	490994.543	6694218.883	2237.613	-2.01026	-0.53863	2.26688
54896	491009.978	6694715.261	2232.235	-1.08142	-1.03246	2.12395
54897	491021.366	6695220.341	2235.312	-1.44364	-0.76291	2.98621
54898	491029.441	6695726.243	2231.351	-1.22969	-0.47393	3.00817
54899	491036.243	6696194.809	2235.405	-0.93861	-0.72821	3.39278
54900	491042.173	6696681.559	2233.078	-1.62826	-0.19853	3.25189
54901	491049.522	6697160.066	2235.480	-0.61056	-0.70007	3.36074
54902	491054.681	6697661.173	2235.851	-1.82846	-1.34800	3.83647
54903	491054.095	6698130.788	2237.574	-0.73317	-0.31995	4.35645
54904	491053.266	6698534.643	2236.767	-2.12791	-0.46312	4.37548
54905	491052.541	6698996.045	2232.510	-0.82637	-0.26429	4.50891
54906	491053.057	6699477.596	2235.521	-1.62882	-0.53950	4.39470
54907	491053.344	6699964.333	2231.411	-0.95038	-0.40389	4.24121
54908	491053.368	6700427.527	2234.908	-0.82756	-1.20987	4.26174
54909	491050.095	6700916.745	2234.169	-1.57738	-0.70376	4.64773
54910	491045.240	6701360.137	2235.594	-0.70829	-0.36006	4.77457
54911	491040.467	6701761.907	2237.124	-1.70942	-0.62475	4.81788
54912	491035.500	6702163.536	2233.177	-1.37692	-0.20731	4.83095
54913	491031.620	6702600.754	2237.013	-0.98816	-0.29347	4.62740
54914	491028.063	6703058.114	2235.190	-1.98332	-0.74968	4.76402
54915	491022.986	6703556.583	2234.509	-0.69612	-0.30186	4.68433
54916	491018.755	6704024.899	2233.036	-1.78826	-0.66519	4.75984
54917	491013.698	6704520.413	2233.146	-0.52770	0.01643	4.80608
54918	491011.459	6704991.723	2235.018	-1.45733	-0.17984	4.48368
54919	491011.364	6705474.720	2234.209	-0.81849	-0.50981	4.28818
54920	491010.705	6705957.160	2237.632	-1.10309	-0.81037	4.54052

54921	491007.120	6706425.150	2234.122	-1.37780	-0.21437	4.93077
54922	491003.779	6706895.350	2235.812	-0.72065	-0.66161	4.70373
54923	491000.684	6707356.846	2235.248	-1.68647	-0.02986	4.69336
54924	490999.435	6707827.915	2232.354	-0.57976	-0.42351	4.47915
54925	490998.773	6708271.272	2234.830	-1.03344	-0.30379	4.44082
54926	490998.859	6708764.188	2233.930	-0.86203	-0.20647	4.10141
54927	490999.922	6709239.370	2237.605	-0.69542	-0.86589	4.17613
54928	490998.374	6709709.807	2235.473	-1.41409	-0.50292	4.40099
54929	490995.433	6710174.418	2235.994	-0.38083	-0.48030	4.53121
54930	490992.536	6710641.239	2234.905	-1.43605	-0.18276	4.39324
54931	490991.696	6711088.327	2235.149	-0.34217	-0.29078	4.27611
54932	490992.122	6711570.738	2237.319	-1.49354	-0.21937	4.18912
54933	490994.473	6712039.702	2235.853	-0.47201	-0.08875	3.84619
54934	490999.113	6712519.781	2236.188	-1.20039	-0.27596	4.10807
54935	491003.813	6712957.421	2235.163	-0.53630	-0.22854	3.86348
54936	491010.591	6713428.269	2238.196	-1.30381	-0.00820	3.48319
54937	489609.513	6714544.991	2239.598	1.02724	0.80673	175.50236
54938	489603.073	6714015.279	2237.574	1.49545	0.16953	175.57367
54939	489597.334	6713569.514	2236.983	0.82397	0.34416	175.66648
54940	489590.922	6713088.355	2238.189	1.13785	0.20408	176.05009
54941	489583.725	6712606.829	2236.653	1.48799	0.27206	176.11870
54942	489575.323	6712119.428	2233.484	1.13170	-0.69705	175.76297
54943	489562.918	6711666.214	2236.426	0.46289	-0.21422	175.14003
54944	489546.155	6711190.098	2236.903	1.44400	-0.46858	174.56170
54945	489528.077	6710761.174	2234.198	1.19185	2.41820	174.20300
54946	489518.064	6710288.914	2237.006	0.68500	1.64631	177.45281
54947	489522.377	6709803.455	2239.896	1.41016	1.23224	178.82890
54948	489533.066	6709385.695	2236.425	1.85167	0.00908	179.55078
54949	489547.655	6708897.683	2234.252	0.65094	0.47734	179.74325
54950	489564.768	6708411.759	2237.446	1.45100	-0.93763	-179.80474
54951	489578.555	6707982.006	2234.649	1.59916	-0.28629	179.39481
54952	489589.573	6707493.125	2234.449	0.41856	-0.88966	178.46448
54953	489593.799	6707047.476	2237.200	1.15862	-0.95938	177.43912
54954	489592.889	6706556.782	2234.391	0.94140	-0.91630	176.86899
54955	489586.487	6706077.044	2238.953	0.74760	-0.10323	176.14736
54956	489577.779	6705604.465	2237.949	1.92482	-0.29812	175.97248
54957	489567.880	6705150.269	2234.448	0.77745	-0.33474	175.77417
54958	489557.689	6704704.881	2235.551	1.07311	1.39060	175.91484
54959	489552.020	6704229.313	2233.259	1.59913	0.63123	176.42450

54960	489550.741	6703736.894	2233.195	0.41768	0.28083	177.33933
54961	489552.553	6703289.363	2235.951	1.20441	0.51609	177.66594
54962	489556.352	6702817.938	2231.609	1.09772	-0.22539	177.90843
54963	489559.988	6702343.571	2234.084	0.28105	0.09412	177.76052
54964	489563.040	6701932.866	2237.647	0.95806	-0.13496	177.58910
54965	489565.455	6701477.183	2236.449	1.26270	-0.17336	177.23811
54966	489567.110	6701032.500	2238.562	0.55093	0.09356	177.03467
54967	489568.944	6700581.110	2240.331	1.69762	-0.14593	176.91801
54968	489569.779	6700151.823	2236.526	1.41017	-0.40387	176.84329
54969	489568.741	6699672.498	2238.757	1.05127	-0.01371	176.81147
54970	489567.491	6699232.927	2237.584	1.90964	-0.08562	177.01203
54971	489565.603	6698772.182	2233.709	1.20173	-0.59394	176.72273
54972	489561.371	6698298.277	2237.044	1.19004	0.21698	176.69890
54973	489557.667	6697878.912	2235.378	2.12323	-0.46796	176.73699
54974	489551.888	6697398.793	2233.245	0.85436	0.54938	176.67076
54975	489548.289	6696919.894	2236.398	1.80235	0.07990	177.05527
54976	489546.181	6696483.915	2234.245	1.59683	0.11101	177.48469
54977	489544.655	6695995.616	2237.092	1.16381	-0.10516	177.52129
54978	489543.682	6695534.457	2233.336	2.11188	-0.02509	177.63443
54979	489542.741	6695047.830	2232.241	0.51452	-0.43007	177.36181
54980	489540.150	6694559.849	2236.387	1.65106	0.06949	177.20089
54981	489537.237	6694063.156	2234.062	1.05639	-0.23685	177.21789
54982	492448.146	6702706.612	2235.340	-0.55806	0.11504	6.14939
54983	492439.793	6703172.239	2238.452	-1.97046	1.29910	6.09193
54984	492434.569	6703673.984	2237.681	-1.00208	0.01107	5.85894
54985	492430.210	6704097.494	2239.552	-1.77282	0.63139	5.66531
54986	492427.873	6704543.691	2233.625	-1.82788	-0.06930	5.45996
54987	492425.855	6704976.899	2233.652	-0.92451	0.58752	5.36634
54988	492425.840	6705440.436	2232.229	-1.65710	0.09728	5.13843
54989	492427.346	6705935.167	2232.434	-0.67354	0.70545	4.77609
54990	492432.589	6706423.277	2233.655	-1.24646	-0.27528	4.47925
54991	492436.054	6706865.443	2234.503	-0.48704	-0.54690	5.04961
54992	492436.856	6707299.407	2237.853	-1.12807	0.40803	4.71136
54993	492438.342	6707746.197	2236.084	-1.20545	0.37858	4.91206
54994	492440.717	6708236.920	2238.817	-0.99728	-0.23047	4.67530
54995	492443.039	6708743.648	2237.016	-1.58219	0.60458	4.51703
54996	492447.574	6709230.524	2238.347	-0.89814	-0.05826	4.43776
54997	492451.257	6709729.465	2235.563	-1.71555	-0.34193	4.75704
54998	492450.739	6710219.819	2235.561	-0.56782	-0.30943	5.53732

54999	492445.544	6710733.885	2234.890	-1.78758	0.22220	6.08689
55000	492441.107	6711193.418	2234.396	-0.49208	0.08194	5.97643
55001	492435.445	6711695.526	2237.405	-1.92144	-0.13949	6.59777
55002	492429.072	6712174.202	2235.282	-0.84704	0.12820	6.46018
55003	492423.104	6712671.229	2236.611	-2.05319	0.25128	6.73436
55004	492419.631	6713164.989	2231.448	13.71968	-1.42422	-2.87951
55005	502356.150	6719537.887	2231.042	-0.79115	-0.17659	-26.85193
55006	502657.575	6719973.033	2235.074	-1.24081	0.80086	-27.45215
55007	502928.139	6720359.481	2233.893	-0.42756	1.23262	-27.74340
55008	503231.986	6720784.764	2239.609	-0.51929	0.41326	-28.54880
55009	503526.725	6721193.961	2239.174	-1.12708	1.19696	-28.38789
55010	503822.107	6721601.389	2240.946	-0.93244	0.34373	-28.25714
55011	504102.342	6721988.095	2238.167	-1.65869	1.44029	-28.01984
55012	504407.119	6722405.335	2236.486	-0.65131	0.36524	-28.32857
55013	504695.493	6722798.547	2237.613	-1.72507	1.47665	-28.22374
55014	504996.060	6723205.807	2234.284	-0.94092	-0.15869	-28.38440
55015	505307.370	6723630.378	2233.708	-1.44349	1.17596	-28.30889
55016	505613.798	6724045.732	2234.953	-0.55881	0.21304	-28.56907
55017	505928.720	6724472.887	2236.290	-1.64462	1.28020	-28.52454
55018	506215.965	6724865.499	2234.084	-1.16706	-1.07302	-27.90723
55019	506490.272	6725252.186	2236.613	-2.17707	0.30100	-27.41692
55020	506780.281	6725669.456	2234.445	-0.29549	0.04135	-26.64491
55021	507041.685	6726048.375	2238.897	-1.18250	0.88942	-26.62318
55022	507317.403	6726445.704	2235.558	-1.00648	0.69070	-26.82615
55023	507605.282	6726860.035	2238.757	-0.84635	0.31462	-26.73979
55024	507870.509	6727243.336	2236.463	-1.27416	0.72162	-26.77449
55025	508131.681	6727620.271	2237.634	0.03576	1.19319	-27.20770
55026	508438.085	6728053.611	2238.045	-1.43818	0.96230	-27.74289
55027	508746.090	6728484.054	2235.013	-0.06441	0.62798	-28.29368
55028	509046.865	6728895.229	2234.910	-0.34802	1.47289	-29.43645
55029	509333.016	6729276.163	2237.095	0.30102	0.64177	-29.26879
55030	509646.131	6729684.707	2241.805	-1.02738	0.60321	-29.94527
55031	509949.456	6730075.452	2243.263	-1.93668	-1.10712	-31.04297
55032	510216.922	6730423.532	2240.454	-1.29977	0.18302	-30.78463
55033	510467.702	6730748.856	2235.305	-0.55125	1.15549	-30.44038
55034	510801.973	6731176.069	2232.606	-0.22060	0.38137	-30.51801
55035	511101.110	6731552.130	2233.041	-0.41613	0.07749	-31.21100
55036	514009.530	6730689.987	2231.363	1.64497	0.76548	142.00617
55037	513701.710	6730219.239	2234.483	1.43497	0.62551	141.78352

55038	513462.772	6729850.748	2233.689	0.52961	-0.14621	141.93319
55039	513189.429	6729429.118	2238.710	-0.62916	-0.98942	141.87711
55040	512926.040	6729039.149	2240.472	0.18119	-0.47678	139.29304
55041	512633.035	6728628.103	2241.137	0.34872	-0.77389	137.55618
55042	512340.914	6728231.718	2241.174	-0.54445	-0.80333	137.59947
55043	512036.400	6727831.080	2242.647	0.32961	-0.93099	137.23447
55044	511731.343	6727438.339	2241.985	1.11759	0.04670	136.60262
55045	511416.303	6727031.777	2245.594	1.07248	-1.06442	136.62236
55046	511102.990	6726626.287	2238.060	2.28632	0.08486	137.26671
55047	510819.490	6726247.054	2238.444	2.34387	0.60230	138.01338
55048	510531.212	6725847.053	2232.580	1.26918	-0.84187	138.92740
55049	510274.252	6725485.318	2234.961	1.00086	0.24501	139.45380
55050	509968.971	6725049.339	2233.925	0.59652	-1.59191	139.37392
55051	509677.555	6724642.551	2236.577	0.26242	-0.16009	138.66891
55052	509419.764	6724287.688	2237.859	0.76342	-1.46207	138.57170
55053	509118.786	6723880.588	2234.933	0.44266	0.05231	138.18655
55054	508805.063	6723457.456	2237.819	1.21402	-0.73863	138.04273
55055	508494.556	6723037.020	2237.097	0.48086	0.16476	138.24329
55056	508185.638	6722614.276	2239.761	1.52414	-0.47949	138.40156
55057	507881.638	6722194.058	2236.795	0.47366	-0.21822	138.95558
55058	507588.373	6721787.925	2239.704	0.89560	-0.68920	138.53197
55059	507327.500	6721428.043	2236.580	0.96705	-0.81844	138.76283
55060	507020.354	6721009.324	2237.512	0.10689	-0.79632	137.77213
55061	506734.234	6720626.925	2237.221	0.46271	-1.52936	137.73282
55062	506442.400	6720241.797	2239.001	0.85599	0.19115	137.50981
55063	506131.748	6719829.815	2237.379	1.49278	-1.27260	137.76734
55064	505839.674	6719443.783	2234.091	0.72855	0.22608	137.75570
55065	505524.542	6719022.655	2238.085	1.36269	-0.74071	138.23301
55066	503903.083	6719176.138	2236.304	-1.52379	0.60181	-28.80348
55067	504208.524	6719597.116	2232.719	-0.33444	0.95673	-28.88493
55068	504476.219	6719962.765	2236.647	-0.79151	0.91186	-28.83307
55069	504748.063	6720329.728	2231.875	-0.99627	1.19945	-29.52086
55070	505014.131	6720683.860	2232.136	-0.44534	-0.42778	-29.63482
55071	505301.186	6721070.138	2233.320	-1.20751	0.84851	-29.27130
55072	505559.634	6721425.035	2234.834	0.16082	0.36451	-28.45139
55073	505823.338	6721794.669	2237.672	-1.28529	0.53713	-27.58741
55074	506106.924	6722198.059	2233.426	-0.44063	-0.02391	-27.71151
55075	506399.746	6722614.180	2237.566	-0.73222	0.41806	-28.17821
55076	506689.792	6723024.109	2235.107	-0.85778	-0.27410	-27.97996

55077	506978.457	6723433.765	2239.273	-0.69953	0.38780	-28.27405
55078	507268.263	6723846.105	2235.464	-0.92171	-0.04787	-28.13680
55079	507543.353	6724241.073	2239.838	-0.67308	0.03709	-28.24196
55080	507827.213	6724649.561	2237.345	-1.32537	0.54814	-28.05090
55081	508112.648	6725061.884	2238.073	-0.62009	0.16545	-28.13974
55082	508385.929	6725456.070	2237.621	-1.49179	0.25353	-28.19946
55083	508660.690	6725853.005	2235.777	0.40975	1.28966	-28.01995
55084	508923.553	6726223.047	2238.361	-0.84864	0.75832	-28.82936
55085	509187.540	6726586.640	2235.621	-1.02314	-0.19594	-29.43721
55086	509461.985	6726962.422	2238.761	-0.51900	0.60213	-29.69791
55087	509720.235	6727314.239	2238.203	-1.06051	0.54903	-29.42451
55088	509962.871	6727644.552	2238.419	-0.67488	0.04187	-29.85477
55089	510258.414	6728046.080	2240.670	-1.19840	1.12900	-29.83451
55090	510543.515	6728430.018	2236.733	-1.33268	0.77284	-30.38210
55091	510843.196	6728833.052	2238.817	-0.95414	0.11770	-30.57388
55092	511112.098	6729196.261	2233.878	-1.52432	0.73329	-30.29792
55093	511403.923	6729590.372	2237.471	-1.07429	-0.59222	-29.38865
55094	511691.135	6729981.141	2234.003	-1.11684	0.73560	-29.46187
55095	511963.429	6730350.508	2237.672	-0.62183	0.21044	-29.82377
55096	512263.029	6730756.564	2235.770	-1.00906	0.97464	-29.89171
55097	512524.005	6731106.433	2238.211	-0.55288	-0.03468	-30.04091

=====

=

WARNING: Less than 11 measured points in following photo(s):

55004: 4 points

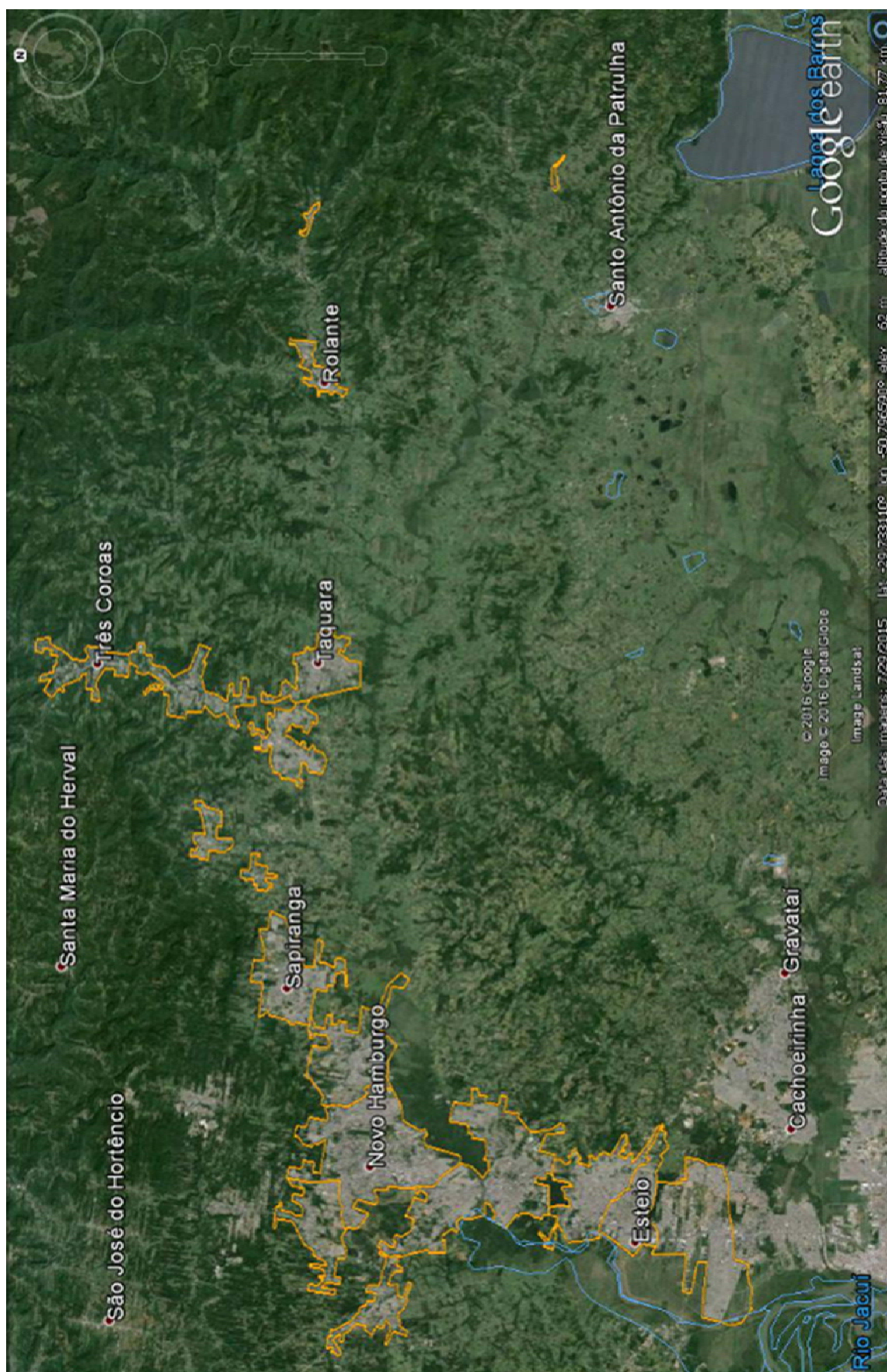
WARNING: Suspect orientation angle(s) (> 4.50000 [deg]) in following photo(s):

photo	omega	phi	kappa
-------	-------	-----	-------

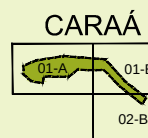
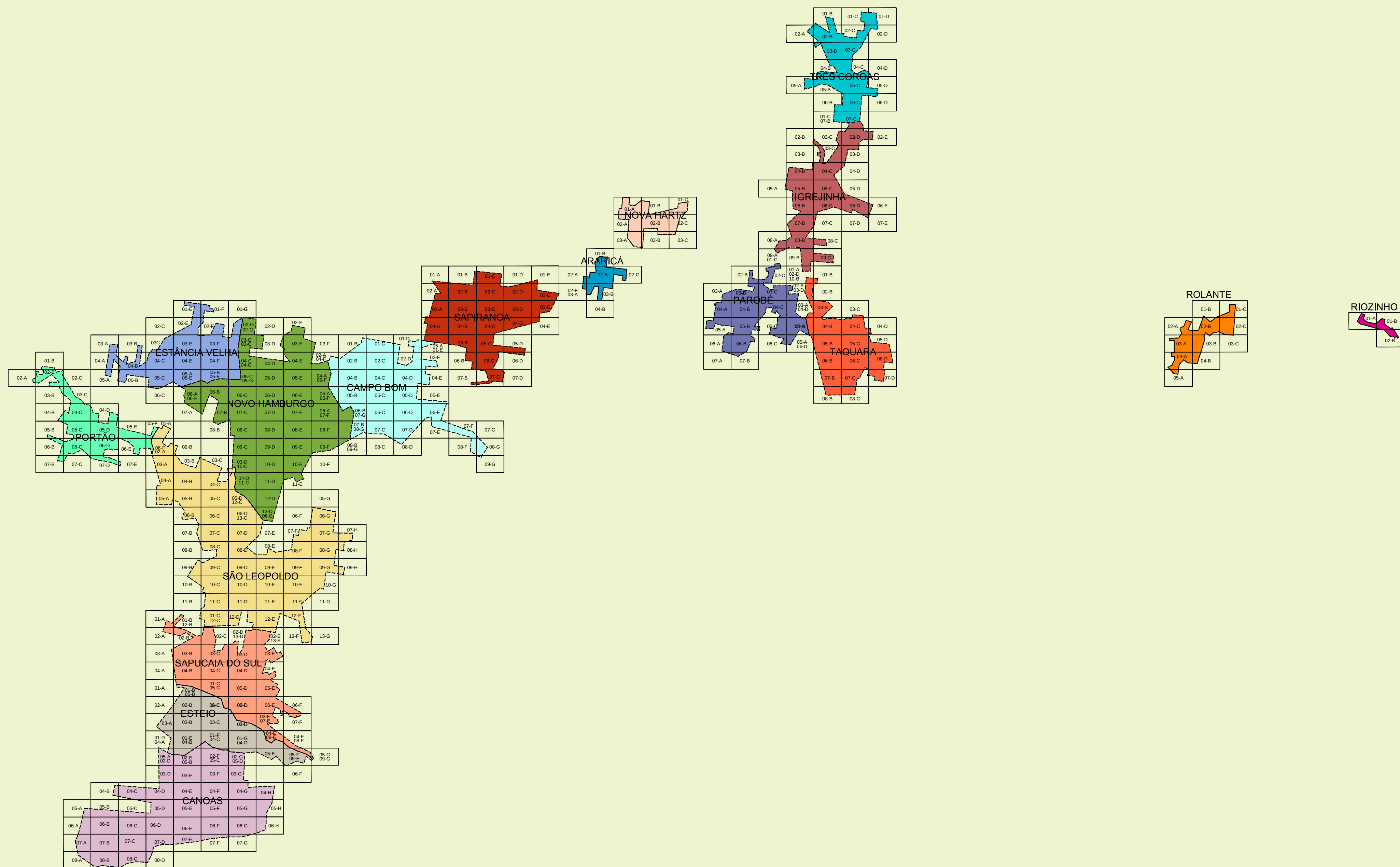
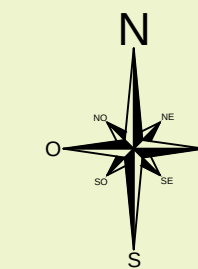
55004	13.71968	-1.42422	-2.87951
-------	----------	----------	----------

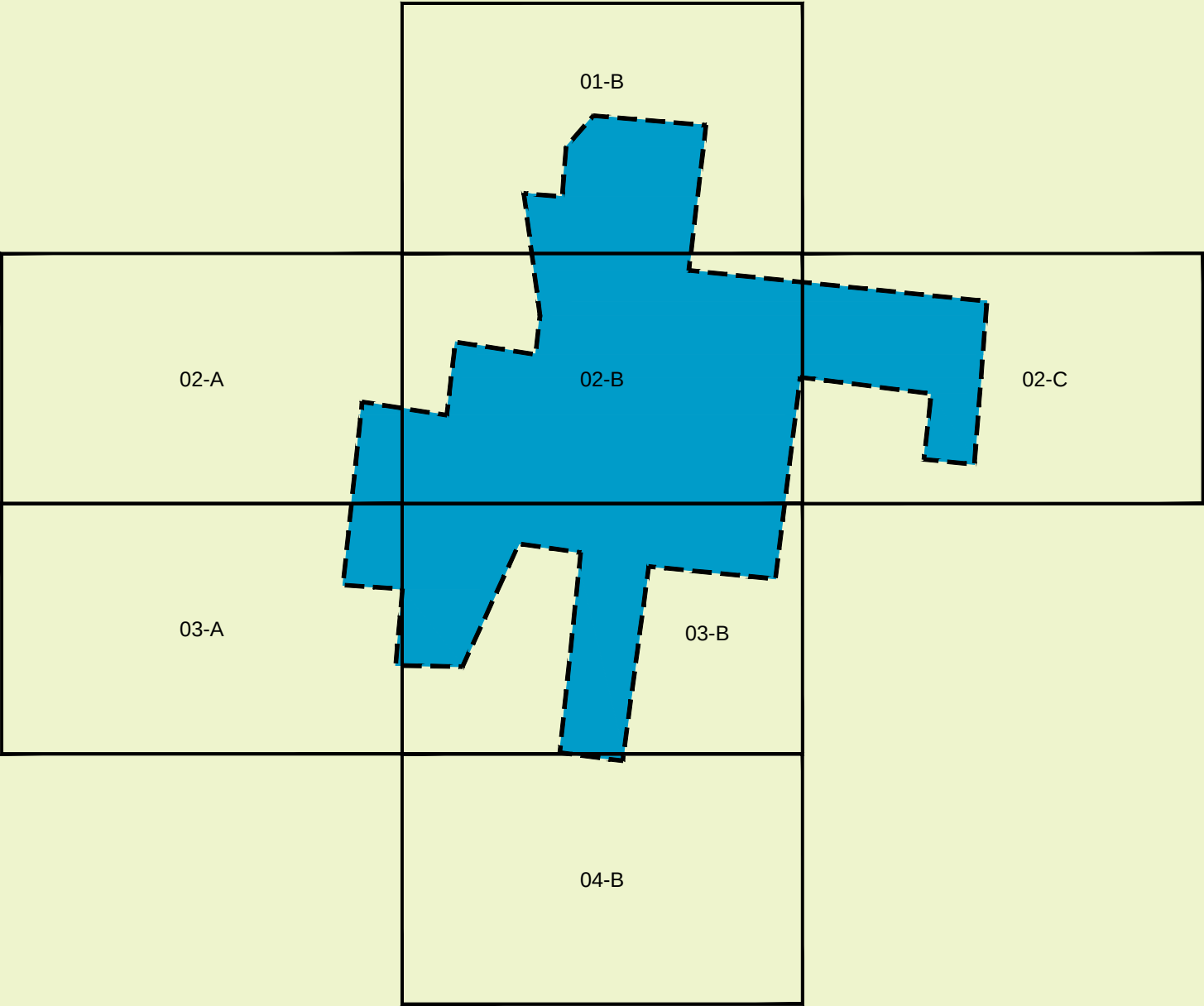
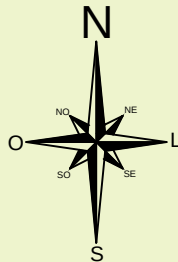
Sigma naught : 0.7 [micron] = 0.1 [pixel in level 0]

ANEXO 11 - ÁREA DA BACIA DO RIO DOS SINOS



ANEXO 12 - MOSAICO





LEGENDA:

RESPONSÁVEIS TÉCNICOS:

ENGº ORGEL CARVALHO FILHO
CREA RS 087284

ENGº LUCIANO BEZERRA
CREA RS 055454

ENGº WELLINGTON COIMBRA LOU
CREA RJ 22414-D

0	EMIÇÃO INICIAL	L. FILIPE	L. FILIPE	THIAGO	20/12/16
REVISÃO	DESCRIÇÃO	DESENHO	VERIFICAÇÃO	APROVAÇÃO	DATA



ESTUDO DE ALTERNATIVAS E PROJETOS PARA MINIMIZAÇÃO
DO EFEITO DAS CHEIAS NA BACIA DO RIO DOS SINOS

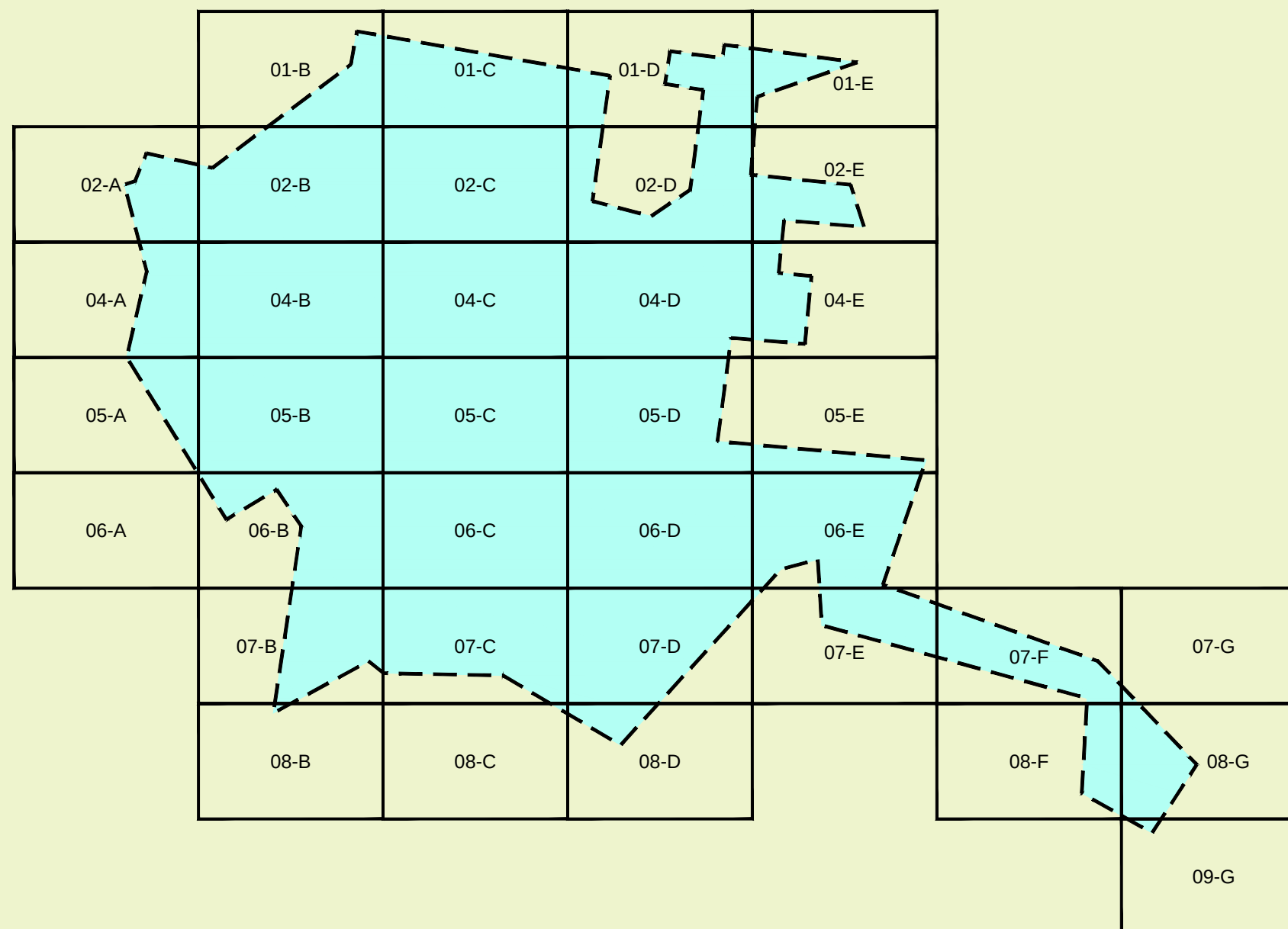
MOSAICO ARARICÁ

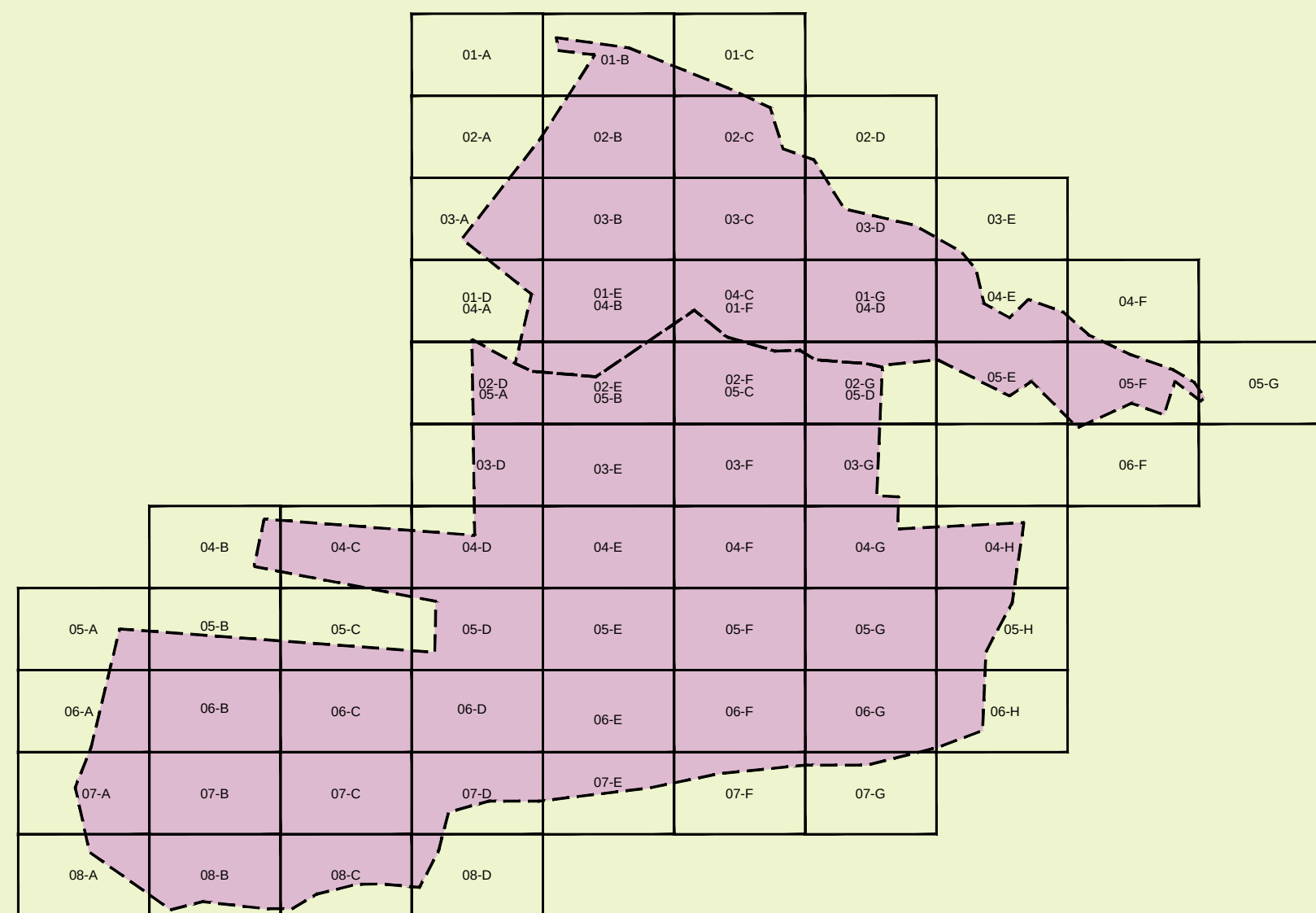
ESCALA
1:25.000

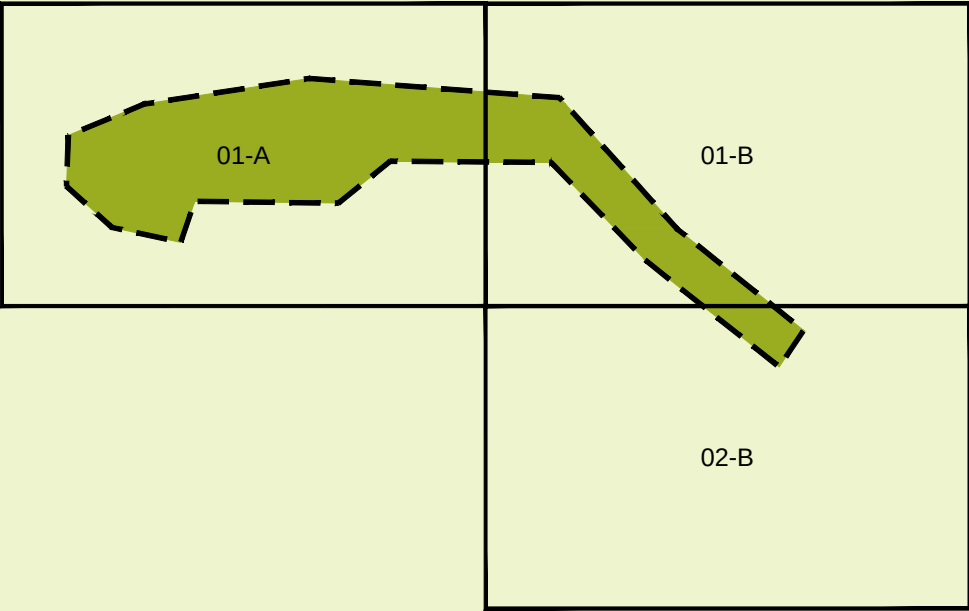
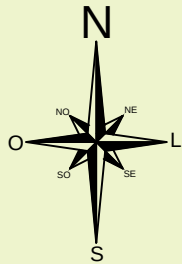
NOME DO ARQUIVO
ANEXO 12 - MOSAICO ARARICA.DWG

CÓDIGO
16001-D-TOP-01-02-00

Nº FOLHA
1/1







LEGENDA:

RESPONSÁVEIS TÉCNICOS:

ENGº ORGEL CARVALHO FILHO
CREA RS 087284

ENGº LUCIANO BEZERRA
CREA RS 055454

ENGº WELLINGTON COIMBRA LOU
CREA RJ 22414-D

0	EMIÇÃO INICIAL	L. FILIPE	L. FILIPE	THIAGO	20/12/16				
REVISÃO	DESCRIÇÃO	DESENHO	VERIFICAÇÃO	APROVAÇÃO	DATA				



ESTUDO DE ALTERNATIVAS E PROJETOS PARA MINIMIZAÇÃO DO EFEITO DAS CHEIAS NA BACIA DO RIO DOS SINOS

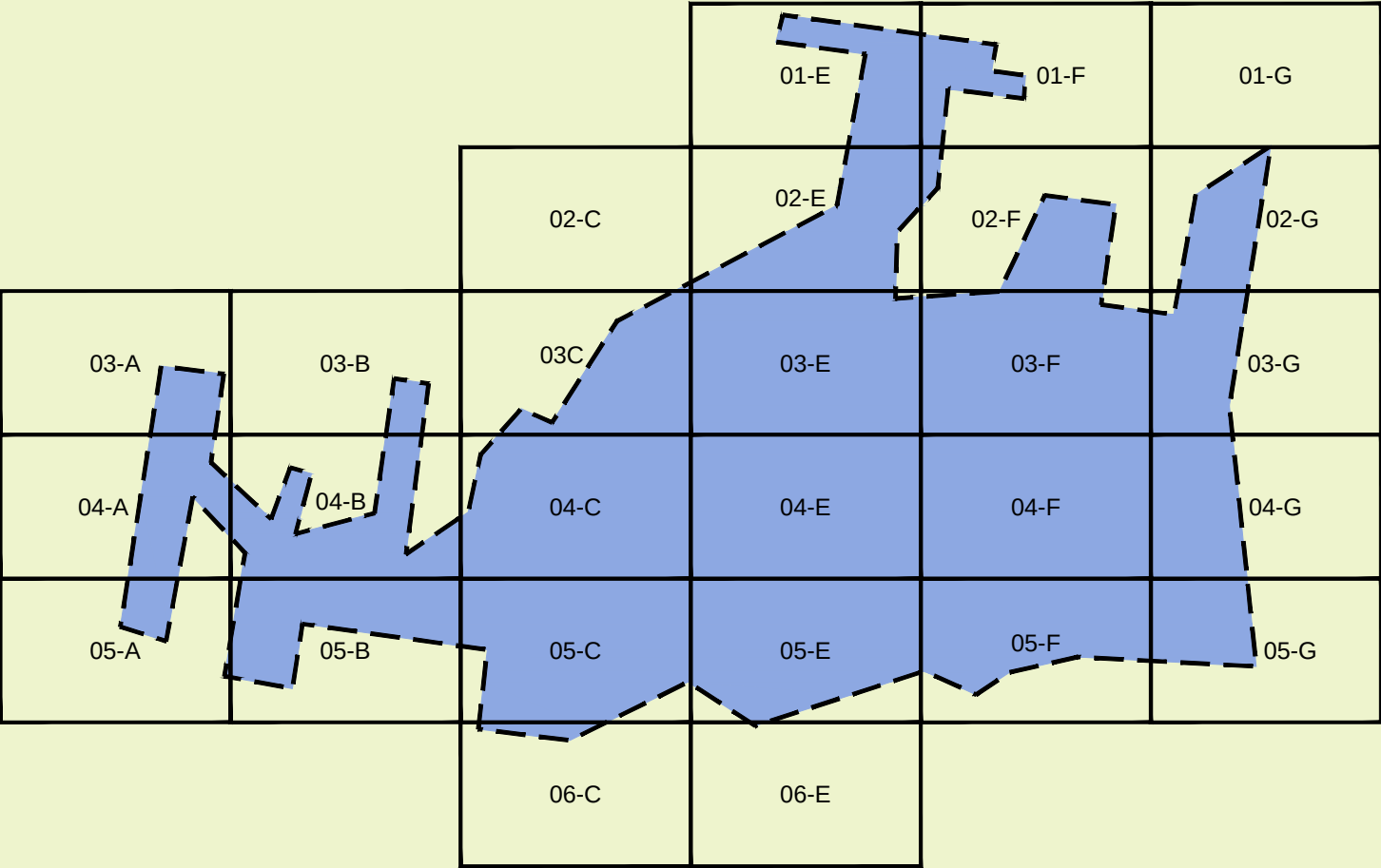
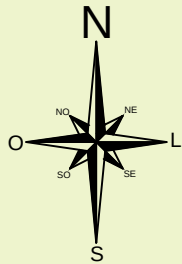
MOSAICO CARAÁ

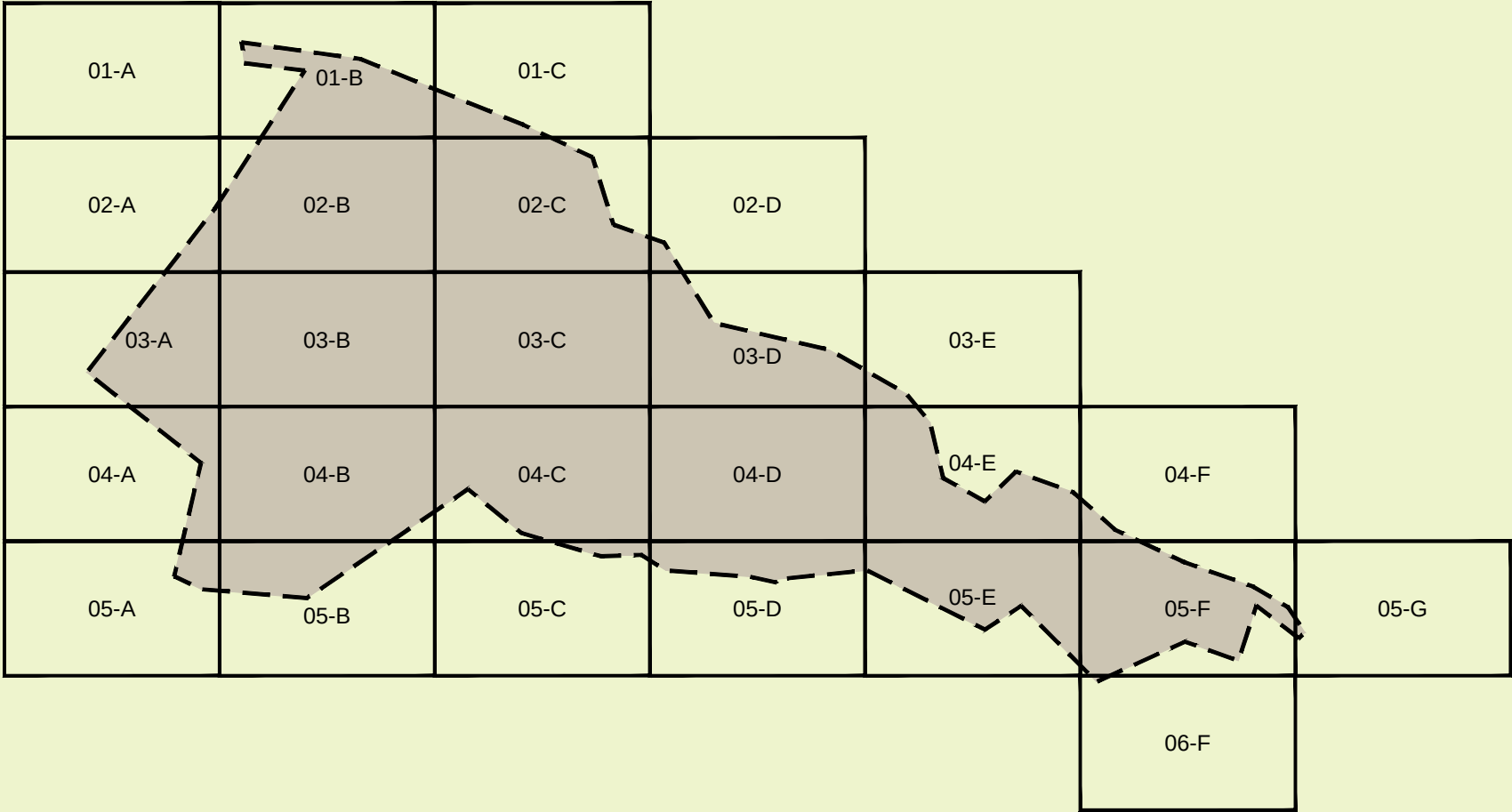
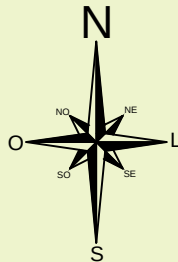
ESCALA
1:25.000

NOME DO ARQUIVO
ANEXO 12 - MOSAICO CARAÁ.DWG

CÓDIGO
16001-D-TOP-01-02-00

Nº FOLHA
1/1









LEGENDA:

RESPONSÁVEIS TÉCNICOS:

ENGº ORGEL CARVALHO FILHO
CREA RS 087284

ENGº LUCIANO BEZERRA
CREA RS 055454

ENGº WELLINGTON COIMBRA LOU
CREA RJ 22414-D

0	EMIÇÃO INICIAL	L. FILIPE	L. FILIPE	THIAGO	20/12/16
REVISÃO	DESCRIÇÃO	DESENHO	VERIFICAÇÃO	APROVAÇÃO	DATA



ESTUDO DE ALTERNATIVAS E PROJETOS PARA MINIMIZAÇÃO DO EFEITO DAS CHEIAS NA BACIA DO RIO DOS SINOS

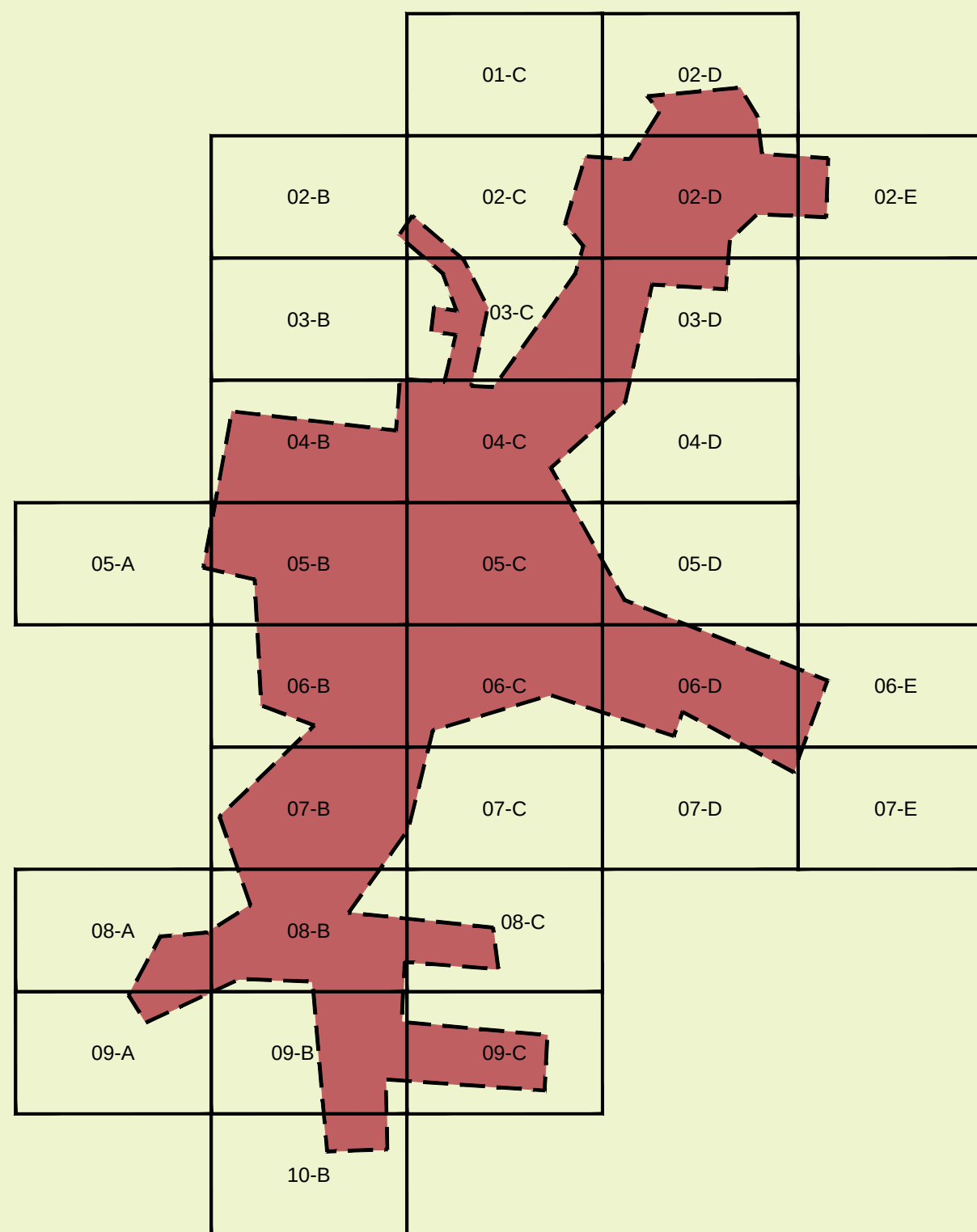
MOSAICO ESTEIO

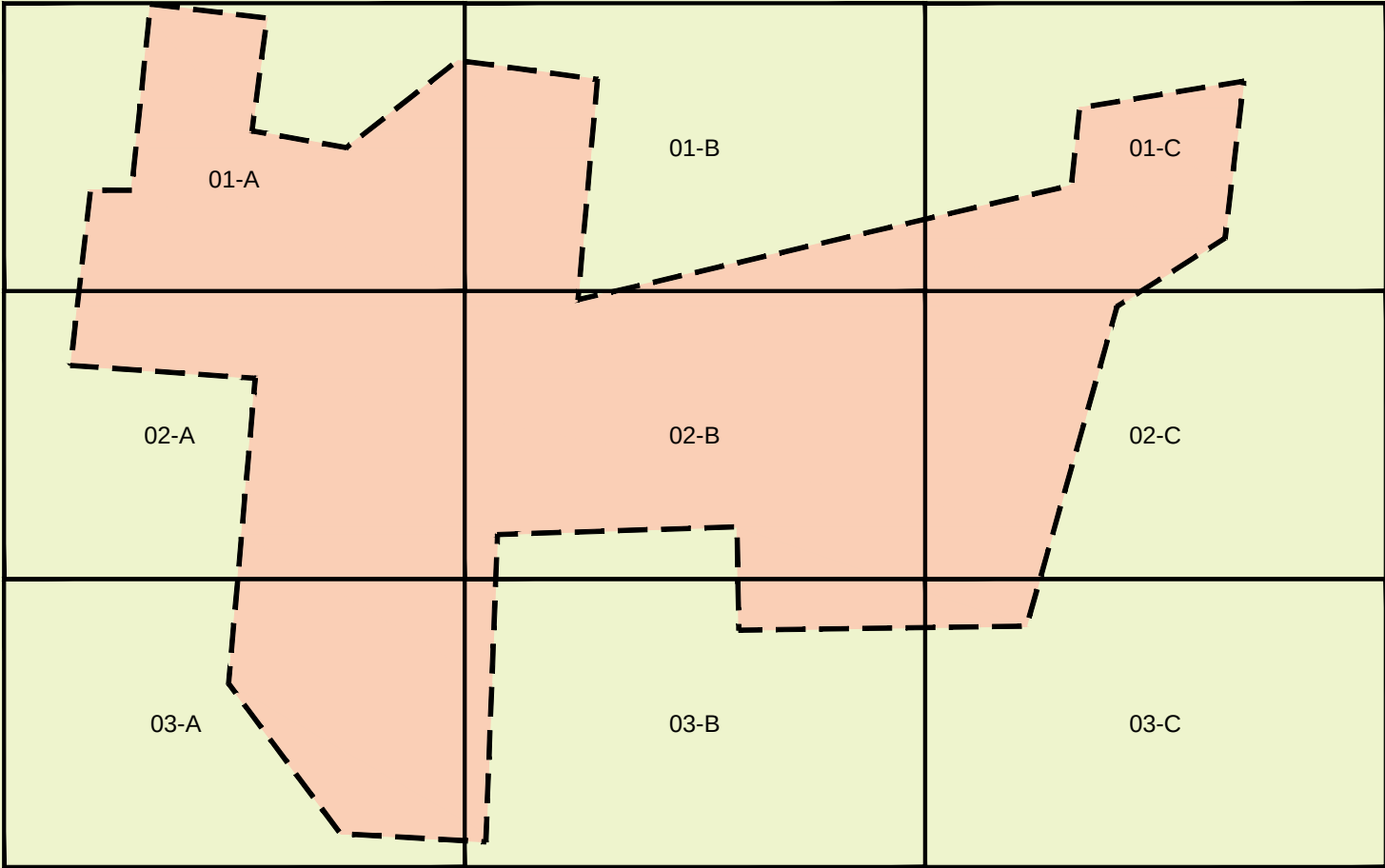
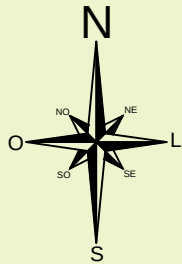
ESCALA
1:50.000

NOME DO ARQUIVO
ANEXO 12 - MOSAICO ESTEIO.DWG

CÓDIGO
16001-D-TOP-01-02-00

Nº FOLHA
1/1





LEGENDA:

RESPONSÁVEIS TÉCNICOS:

ENGº ORGEL CARVALHO FILHO
CREA RS 087284

ENGº LUCIANO BEZERRA
CREA RS 055454

ENGº WELLINGTON COIMBRA LOU
CREA RJ 22414-D

0	EMIÇÃO INICIAL	L. FILIPE	L. FILIPE	THIAGO	20/12/16
REVISÃO	DESCRIÇÃO	DESENHO	VERIFICAÇÃO	APROVAÇÃO	DATA



ESTUDO DE ALTERNATIVAS E PROJETOS PARA MINIMIZAÇÃO
DO EFEITO DAS CHEIAS NA BACIA DO RIO DOS SINOS

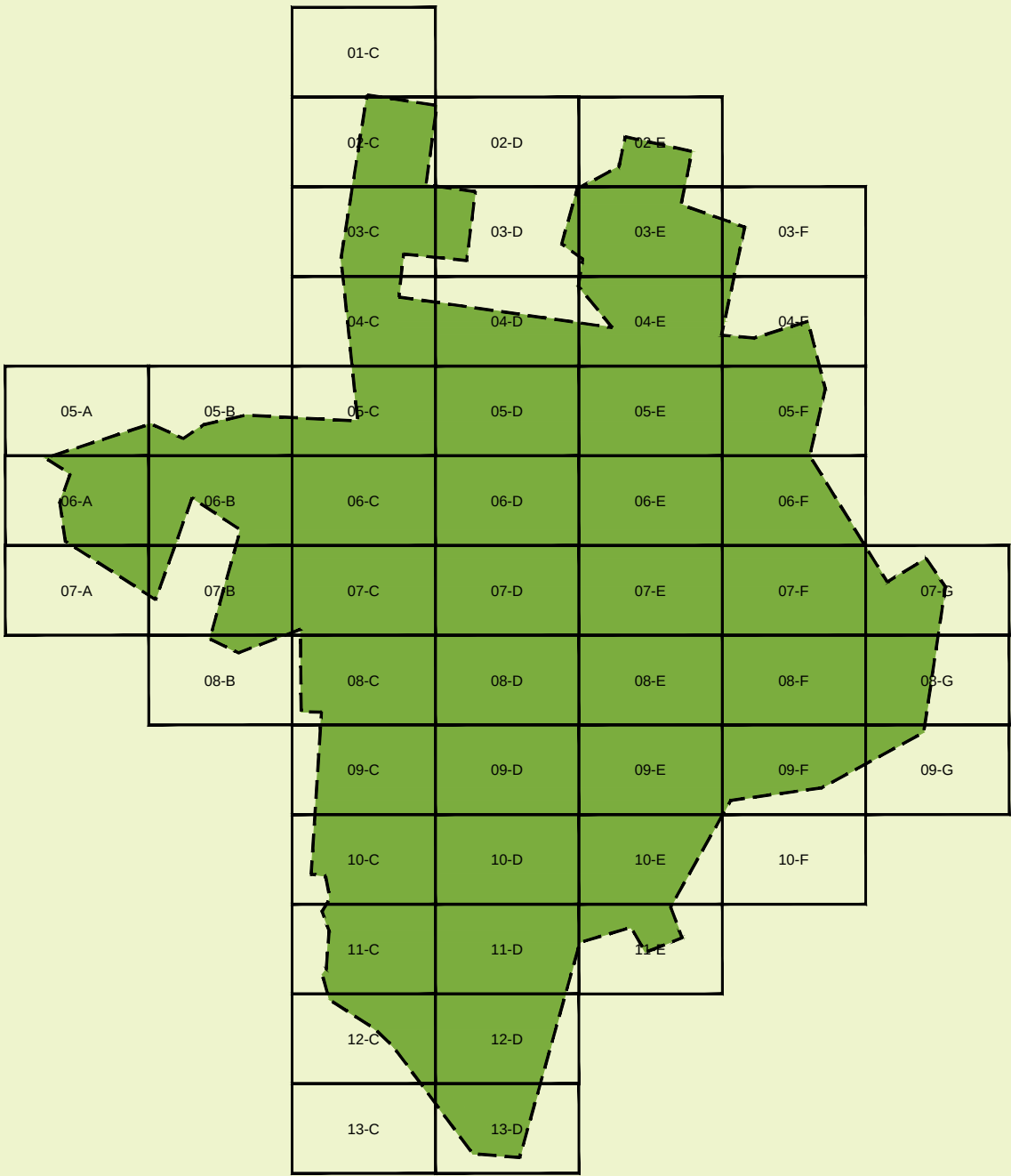
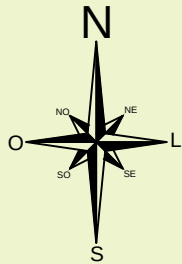
MOSAICO NOVA HARTZ

ESCALA
1:25.000

NOME DO ARQUIVO
ANEXO 12 - MOSAICO NOVA HARTZ.DWG

CÓDIGO
16001-D-TOP-01-02-00

Nº FOLHA
1/1



LEGENDA:

RESPONSÁVEIS TÉCNICOS:

ENGº ORGEL CARVALHO FILHO
CREA RS 087284

ENGº LUCIANO BEZERRA
CREA RS 055454

ENGº WELLINGTON COIMBRA LOU
CREA RJ 22414-D

0	EMIÇÃO INICIAL	L. FILIPE	L. FILIPE	THIAGO	20/12/16				
REVISÃO	DESCRIÇÃO	DESENHO	VERIFICAÇÃO	APROVAÇÃO	DATA				



ESTUDO DE ALTERNATIVAS E PROJETOS PARA MINIMIZAÇÃO DO EFEITO DAS CHEIAS NA BACIA DO RIO DOS SINOS

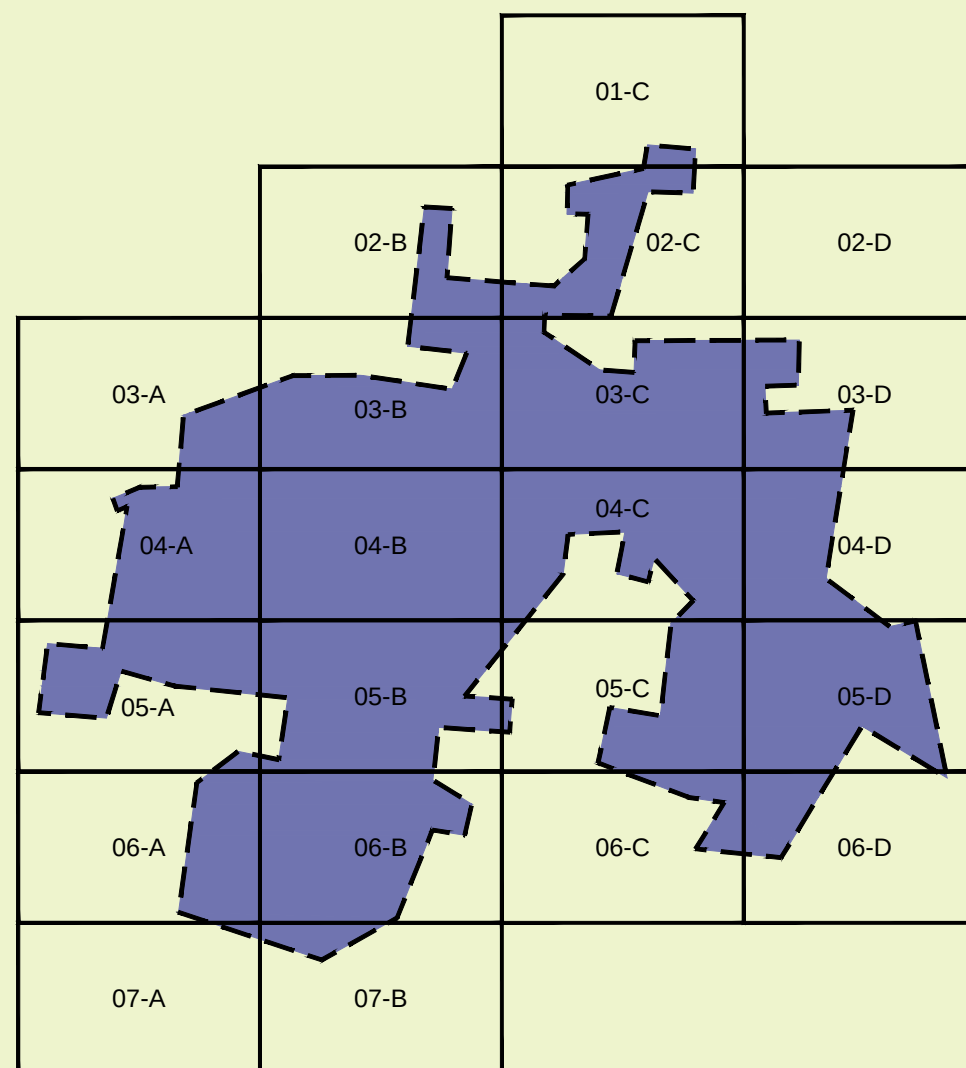
MOSAICO NOVO HAMBURGO

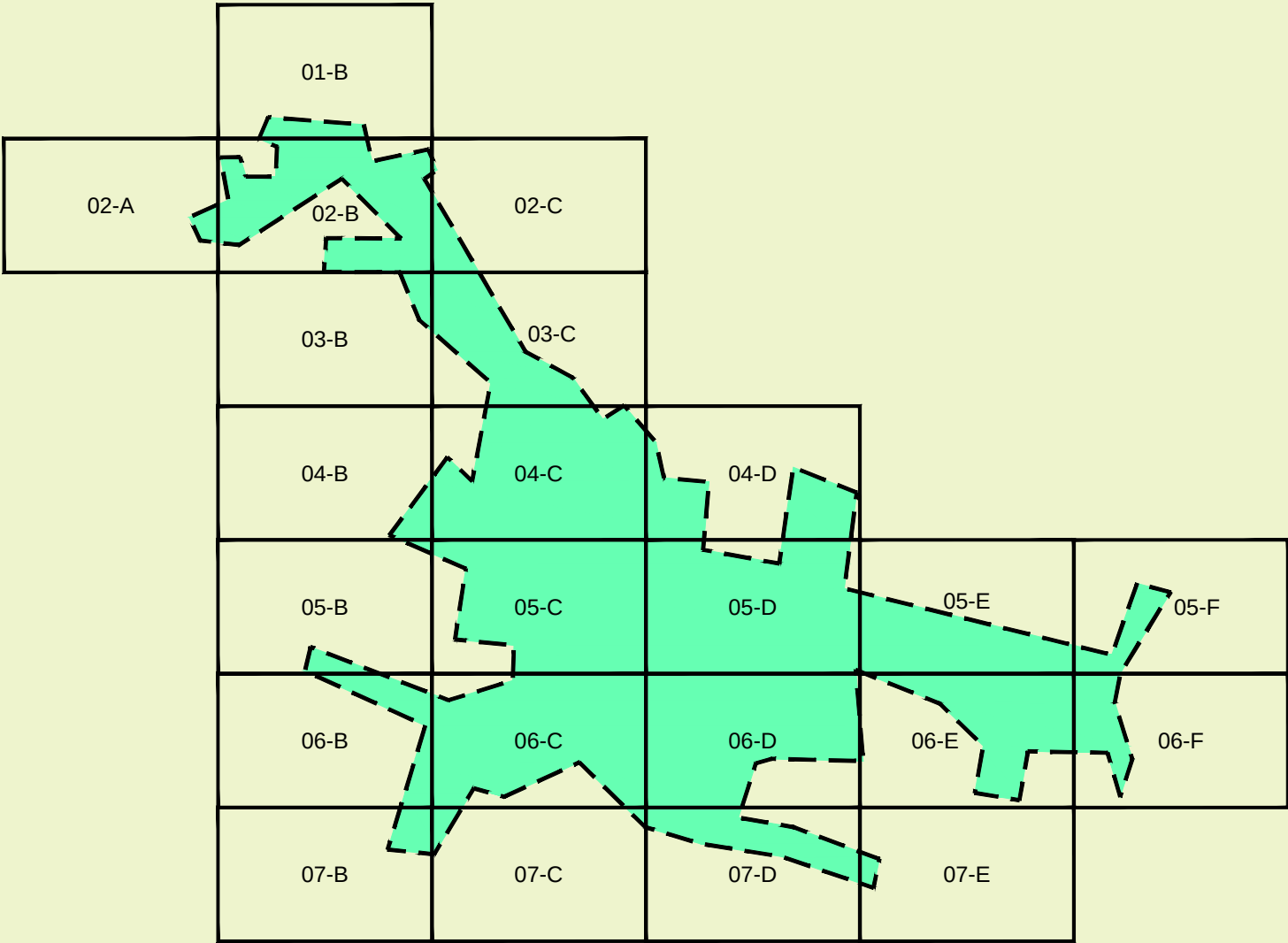
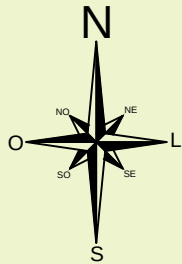
ESCALA
1:75.000

NOME DO ARQUIVO
ANEXO 12 - MOSAICO NOVO HAMBURGO.DWG

CÓDIGO
16001-D-TOP-01-02-00

Nº FOLHA
1/1







METROPLAN
Fundação Estadual de Planejamento
Metropolitano e Regional



GOVERNO DO ESTADO
RIO GRANDE DO SUL



encop



ENGENHARIA **M**



COHIDRO
consultoria estudos projetos

LEGENDA:

RESPONSÁVEIS TÉCNICOS:

ENGº ORGEL CARVALHO FILHO
CREA RS 087284

ENGº LUCIANO BEZERRA
CREA RS 055454

ENGº WELLINGTON COIMBRA LOU
CREA RJ 22414-D

0	EMIÇÃO INICIAL	L. FILIPE	L. FILIPE	THIAGO	20/12/16				
REVISÃO	DESCRIÇÃO	DESENHO	VERIFICAÇÃO	APROVAÇÃO	DATA				



METROPLAN
Fundação Estadual de Planejamento
Metropolitano e Regional

ESTUDO DE ALTERNATIVAS E PROJETOS PARA MINIMIZAÇÃO DO EFEITO DAS CHEIAS NA BACIA DO RIO DOS SINOS

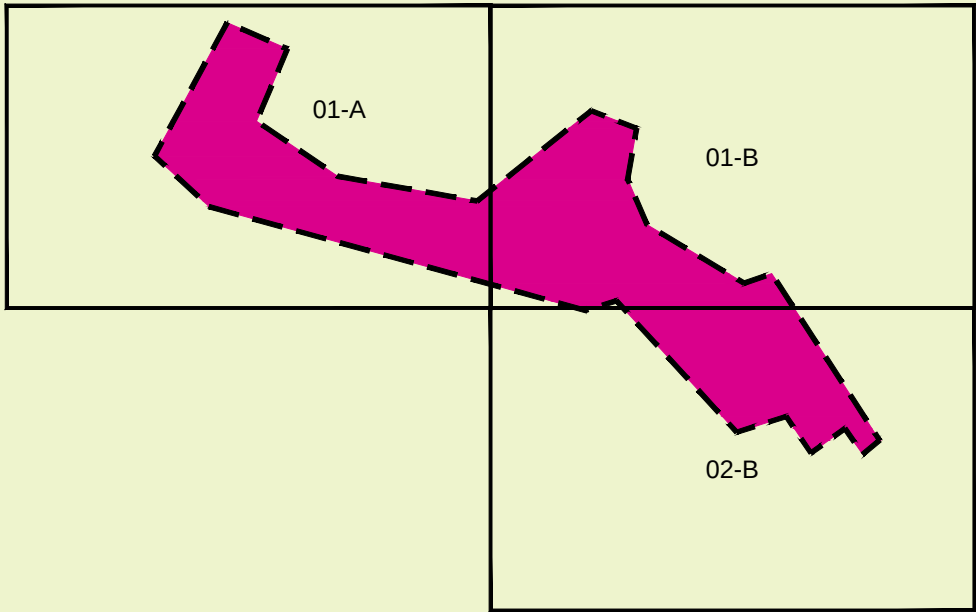
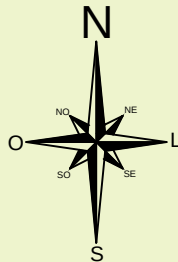
MOSAICO PORTÃO

ESCALA
1:50.000

NOME DO ARQUIVO
ANEXO 12 - MOSAICO PORTÃO.DWG

CÓDIGO
16001-D-TOP-01-02-00

Nº FOLHA
1/1



LEGENDA:

RESPONSÁVEIS TÉCNICOS:

ENGº ORGEL CARVALHO FILHO
CREA RS 087284

ENGº LUCIANO BEZERRA
CREA RS 055454

ENGº WELLINGTON COIMBRA LOU
CREA RJ 22414-D

0	EMIÇÃO INICIAL	L. FILIPE	L. FILIPE	THIAGO	20/12/16				
REVISÃO	DESCRIÇÃO	DESENHO	VERIFICAÇÃO	APROVAÇÃO	DATA				



ESTUDO DE ALTERNATIVAS E PROJETOS PARA MINIMIZAÇÃO
DO EFEITO DAS CHEIAS NA BACIA DO RIO DOS SINOS

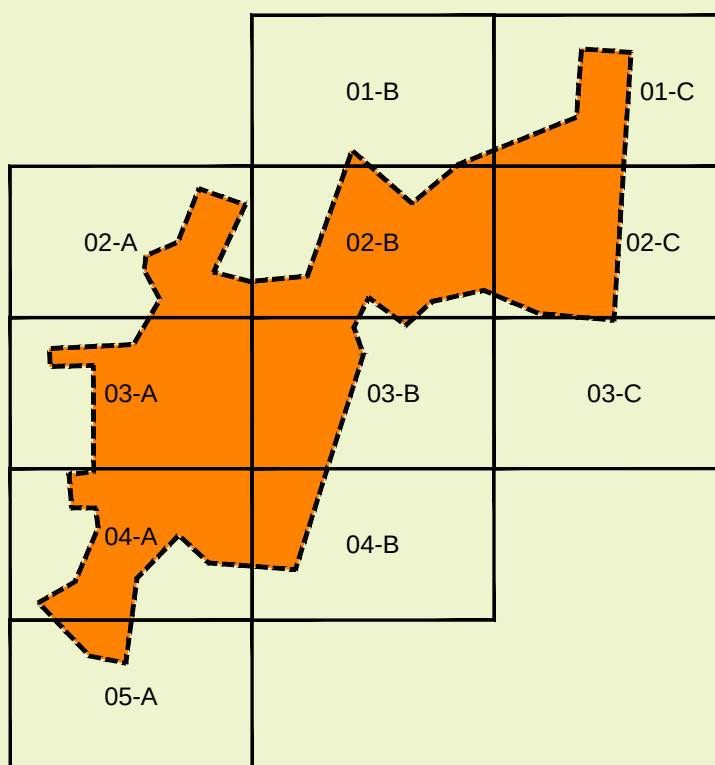
MOSAICO RIOZINHO

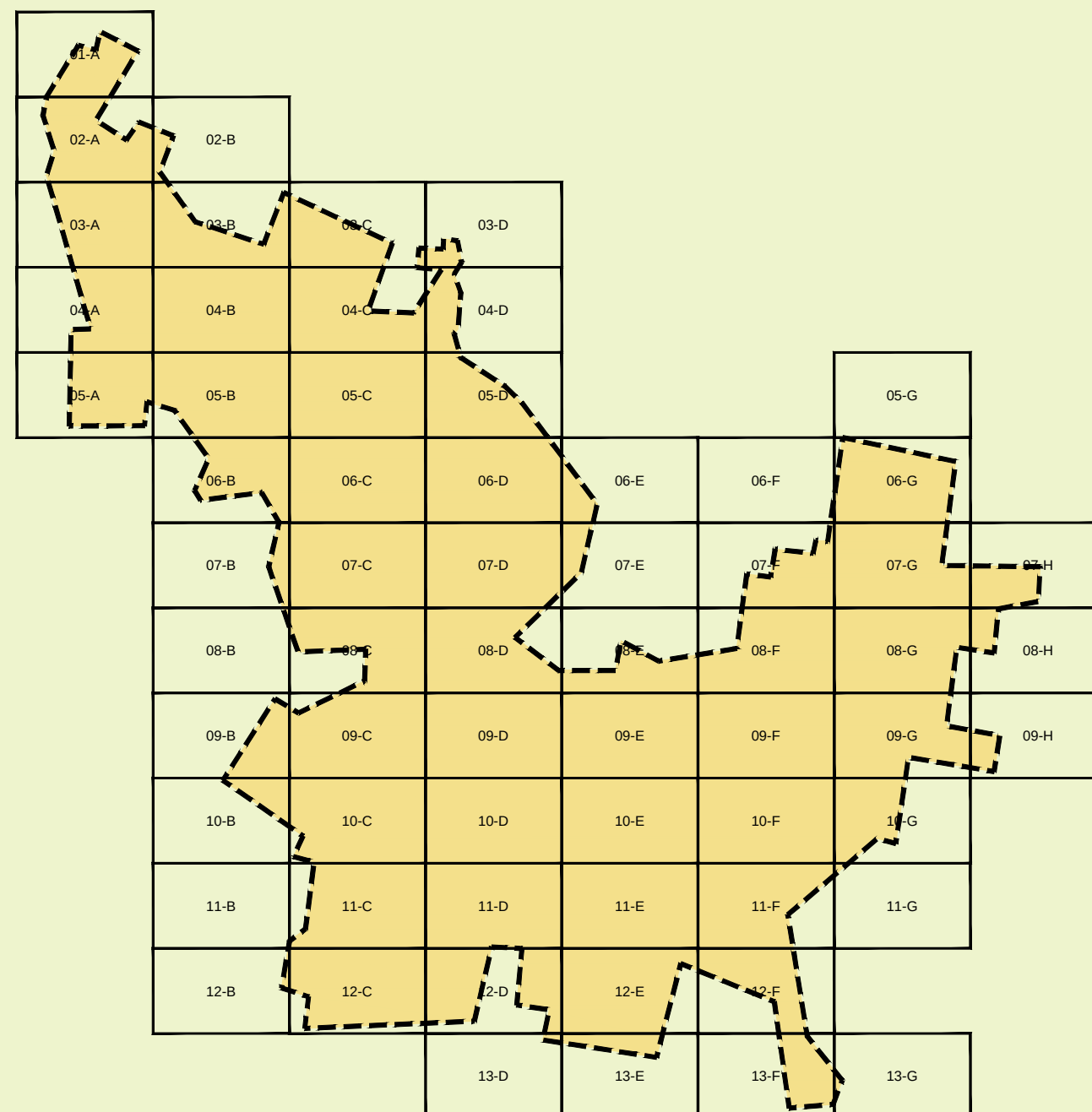
ESCALA
1:25.000

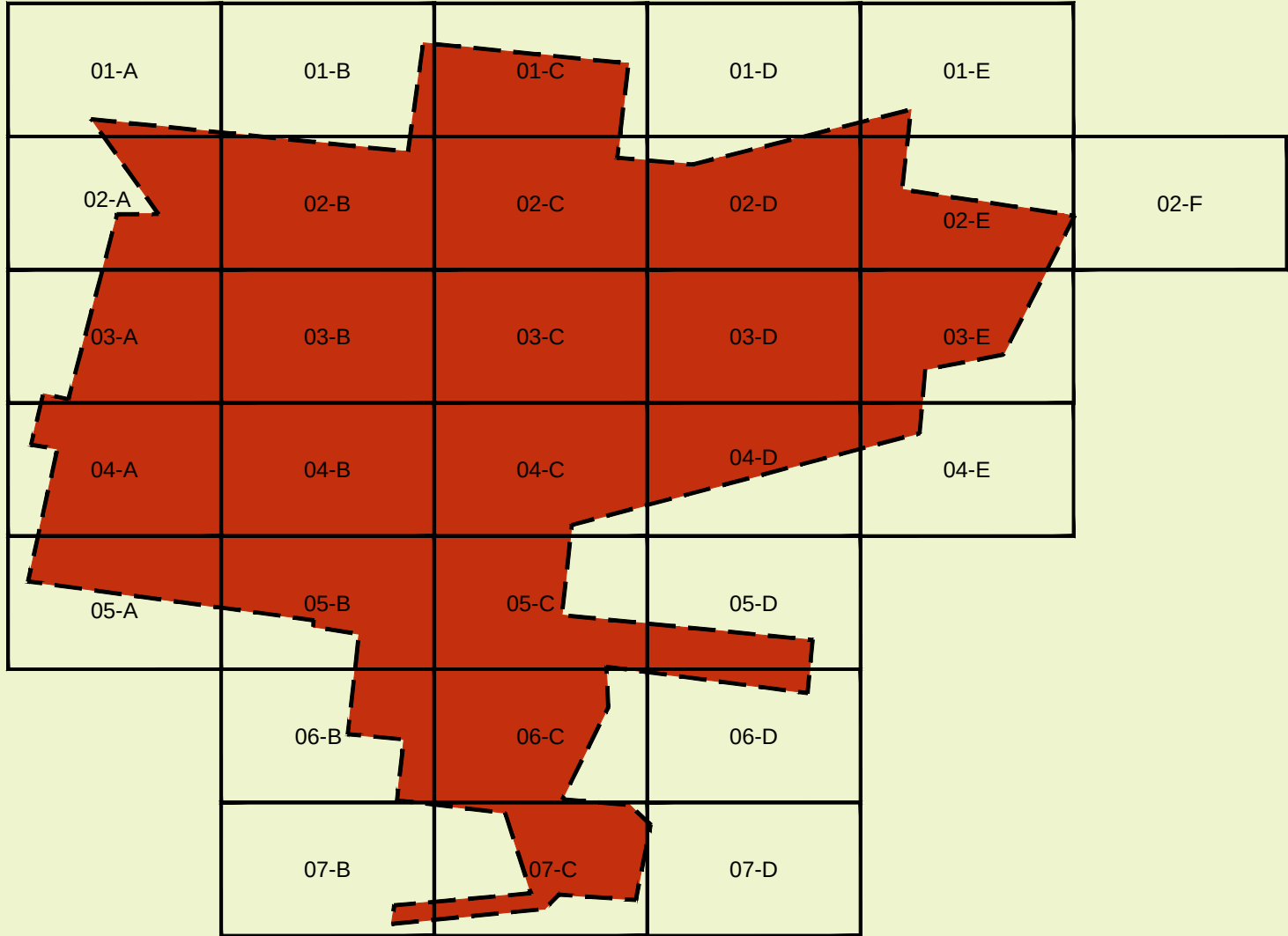
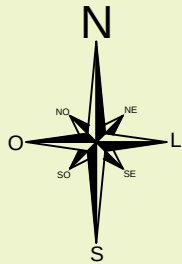
NOME DO ARQUIVO
ANEXO 12 - MOSAICO RIOZINHO.DWG

CÓDIGO
16001-D-TOP-01-02-00

Nº FOLHA
1/1







LEGENDA:

RESPONSÁVEIS TÉCNICOS:

ENGº ORGEL CARVALHO FILHO
CREA RS 087284

ENGº LUCIANO BEZERRA
CREA RS 055454

ENGº WELLINGTON COIMBRA LOU
CREA RJ 22414-D

0	EMIÇÃO INICIAL	L. FILIPE	L. FILIPE	THIAGO	20/12/16				
REVISÃO	DESCRIÇÃO	DESENHO	VERIFICAÇÃO	APROVAÇÃO	DATA				



ESTUDO DE ALTERNATIVAS E PROJETOS PARA MINIMIZAÇÃO
DO EFEITO DAS CHEIAS NA BACIA DO DOS SINOS

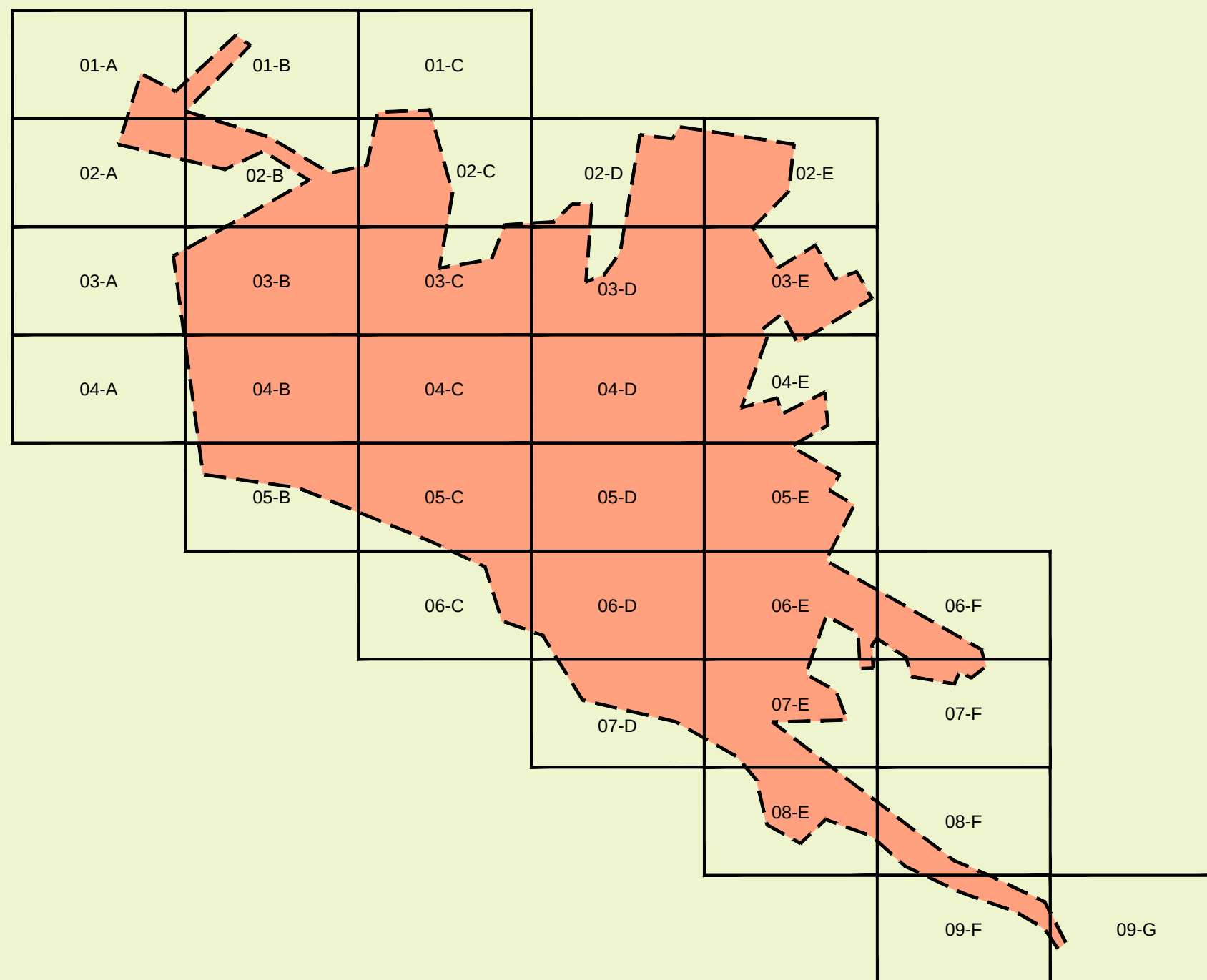
MOSAICO SAPIRANGA

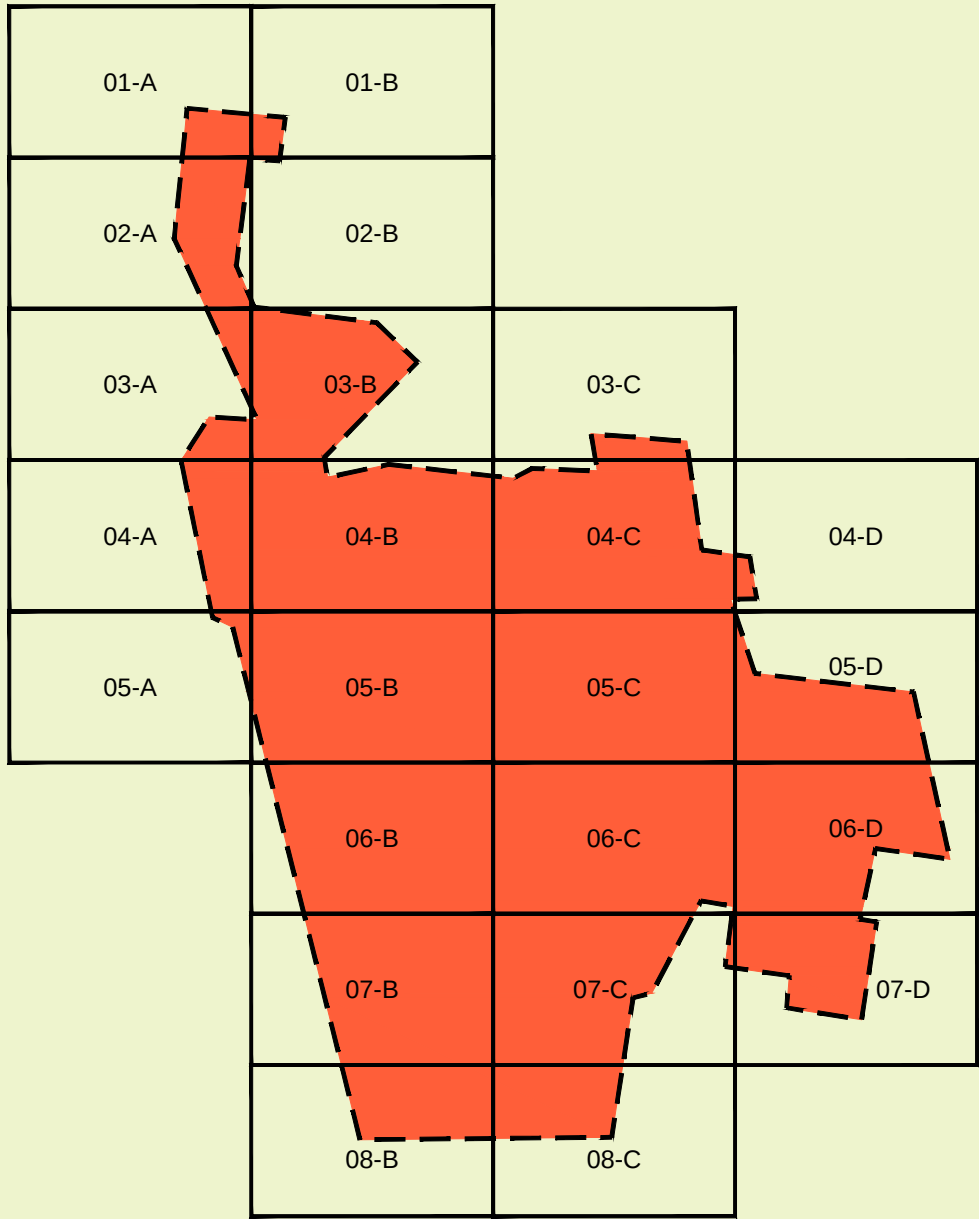
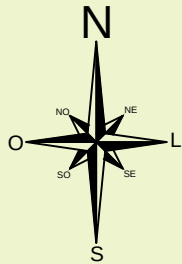
ESCALA
1:50.000

NOME DO ARQUIVO
ANEXO 12 - MOSAICO SAPIRANGA.DWG

CÓDIGO
16001-D-TOP-01-02-00

Nº FOLHA
1/1





LEGENDA:

RESPONSÁVEIS TÉCNICOS:

ENGº ORGEL CARVALHO FILHO
CREA RS 087284

ENGº LUCIANO BEZERRA
CREA RS 055454

ENGº WELLINGTON COIMBRA LOU
CREA RJ 22414-D

0	EMIÇÃO INICIAL	L. FILIPE	L. FILIPE	THIAGO	20/12/16				
REVISÃO	DESCRIÇÃO	DESENHO	VERIFICAÇÃO	APROVAÇÃO	DATA				



ESTUDO DE ALTERNATIVAS E PROJETOS PARA MINIMIZAÇÃO
DO EFEITO DAS CHEIAS NA BACIA DO RIO DOS SINOS

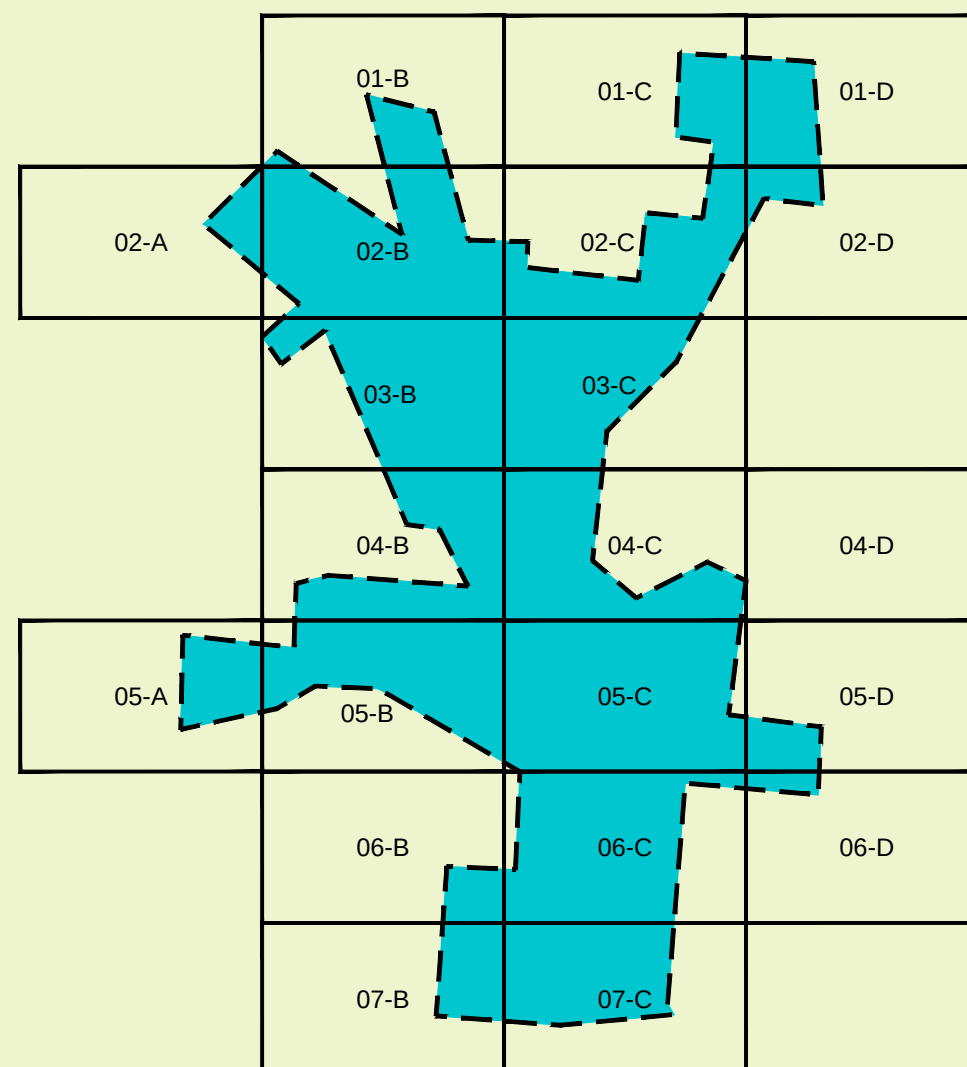
MOSAICO TAQUARA

ESCALA
1:50.000

NOME DO ARQUIVO
ANEXO 12 - MOSAICO TAQUARA.DWG

CÓDIGO
16001-D-TOP-01-02-00

Nº FOLHA
1/1



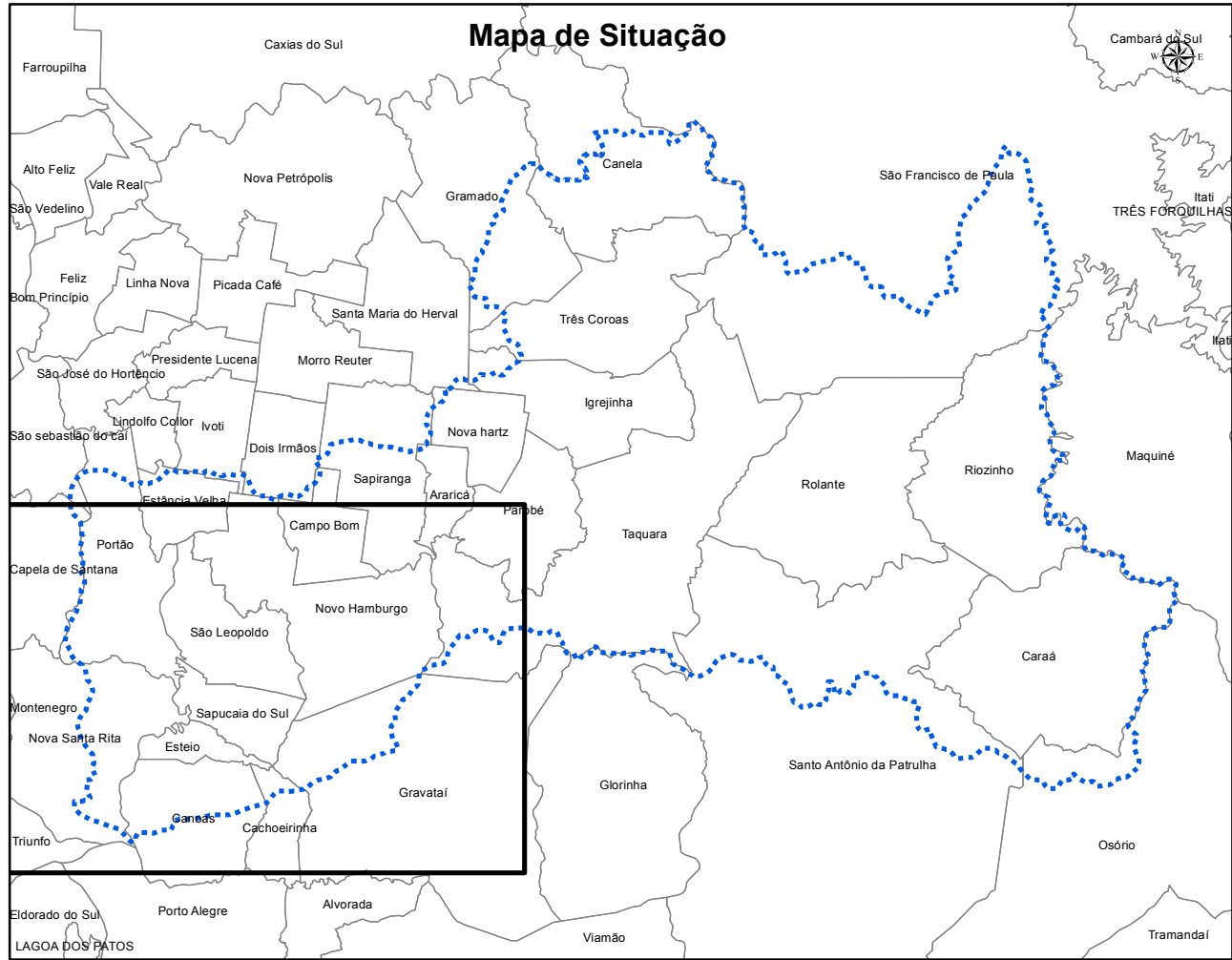
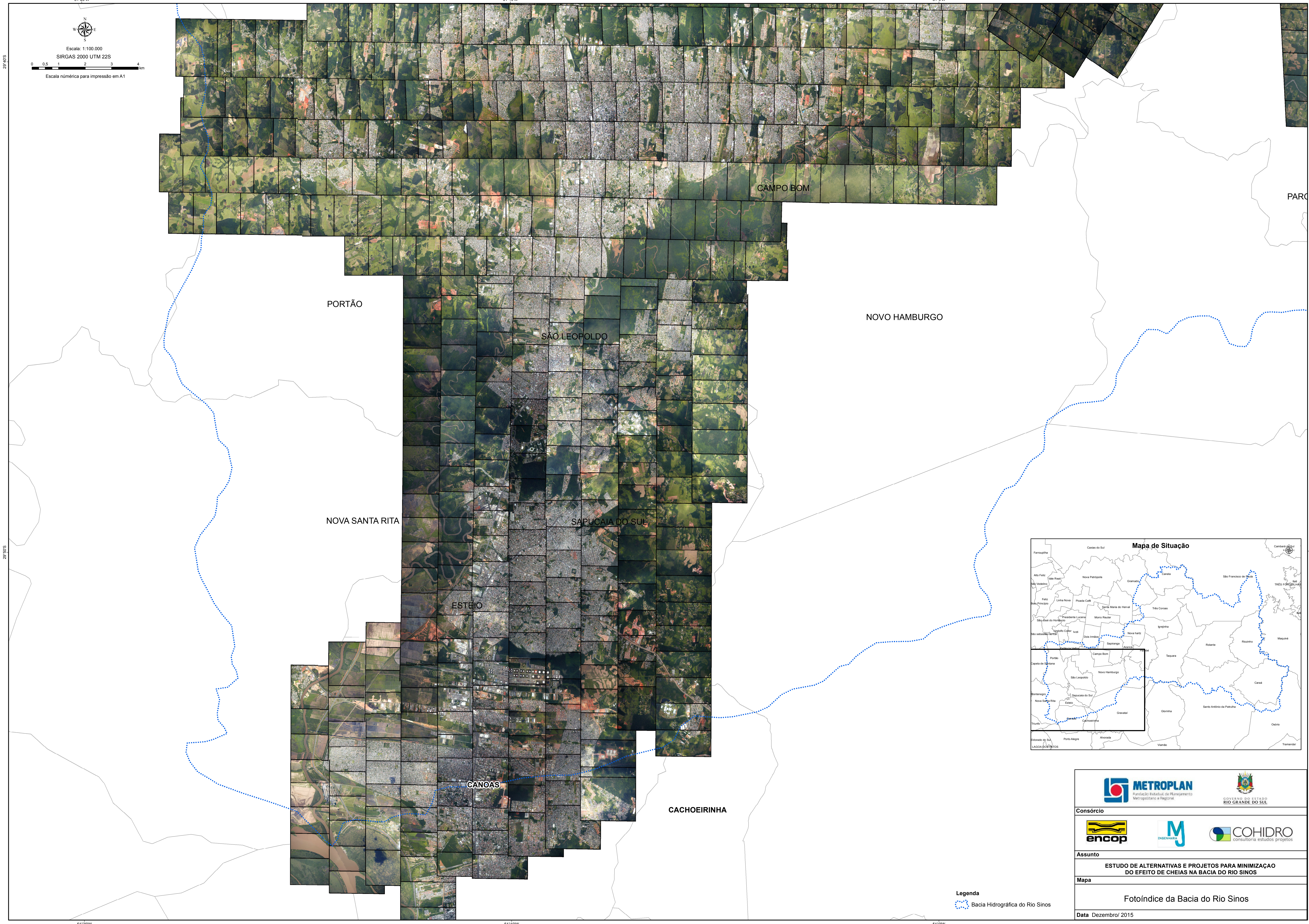
ANEXO 13 - ORTOFOTOS

Este anexo está sendo apresentado somente em mídia digital.

ANEXO 14 - RESTITUIÇÃO AEROFOTOGRAMÉTRICA

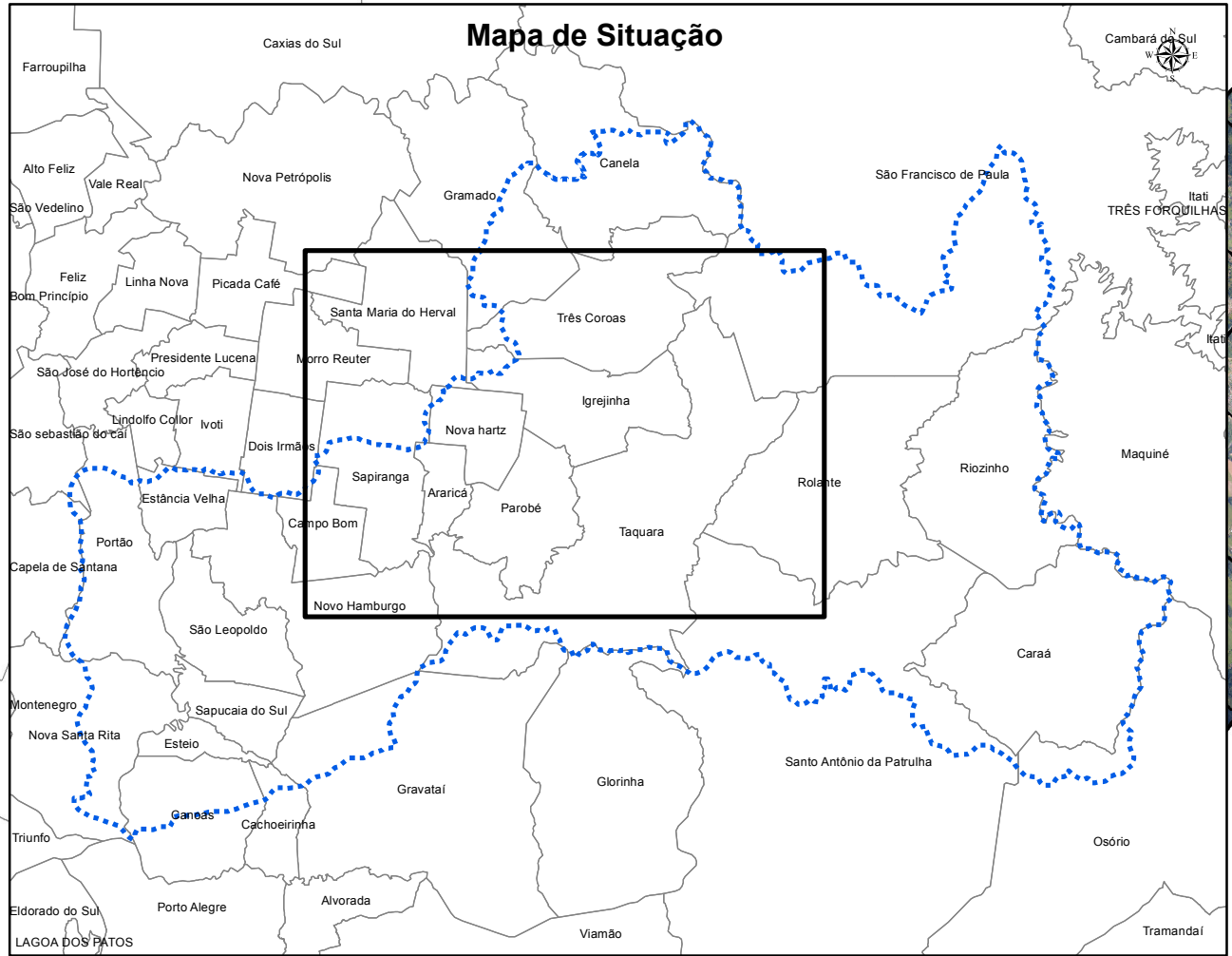
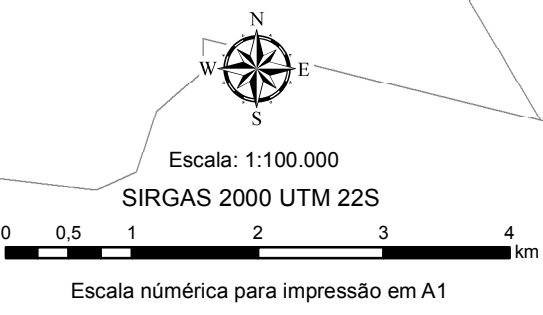
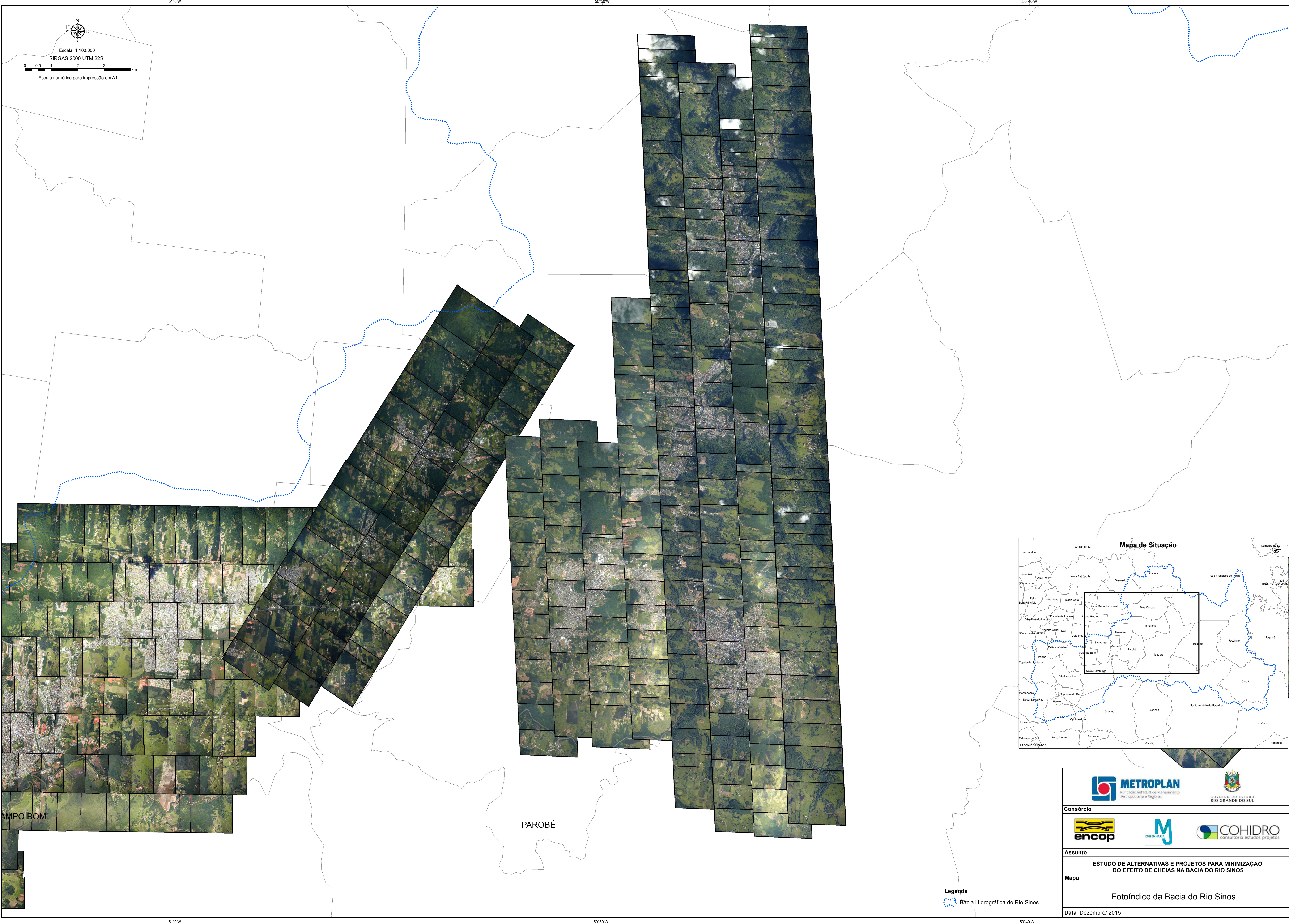
Este anexo está sendo apresentado somente em mídia digital.

ANEXO 15 - FOTO INDICE



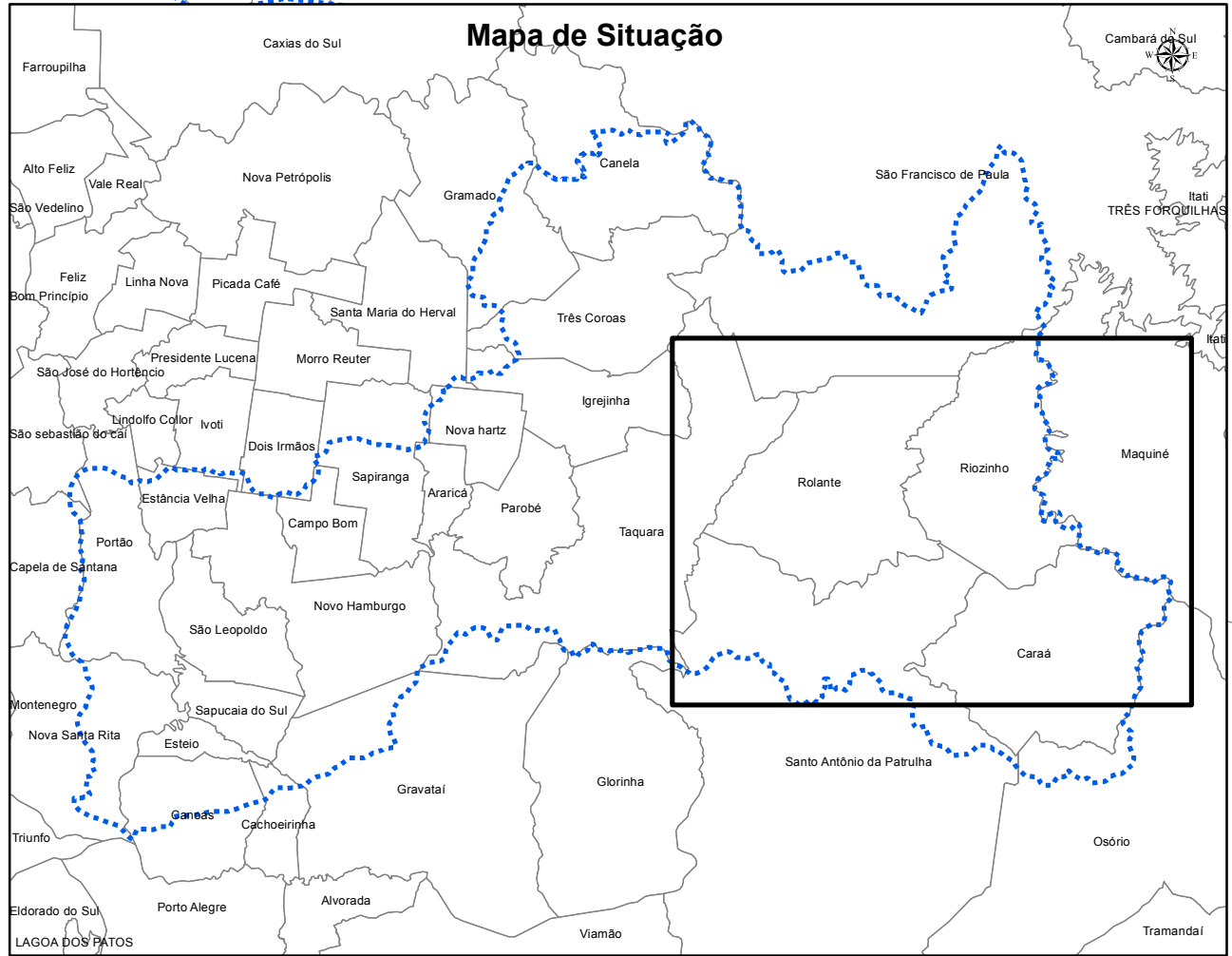
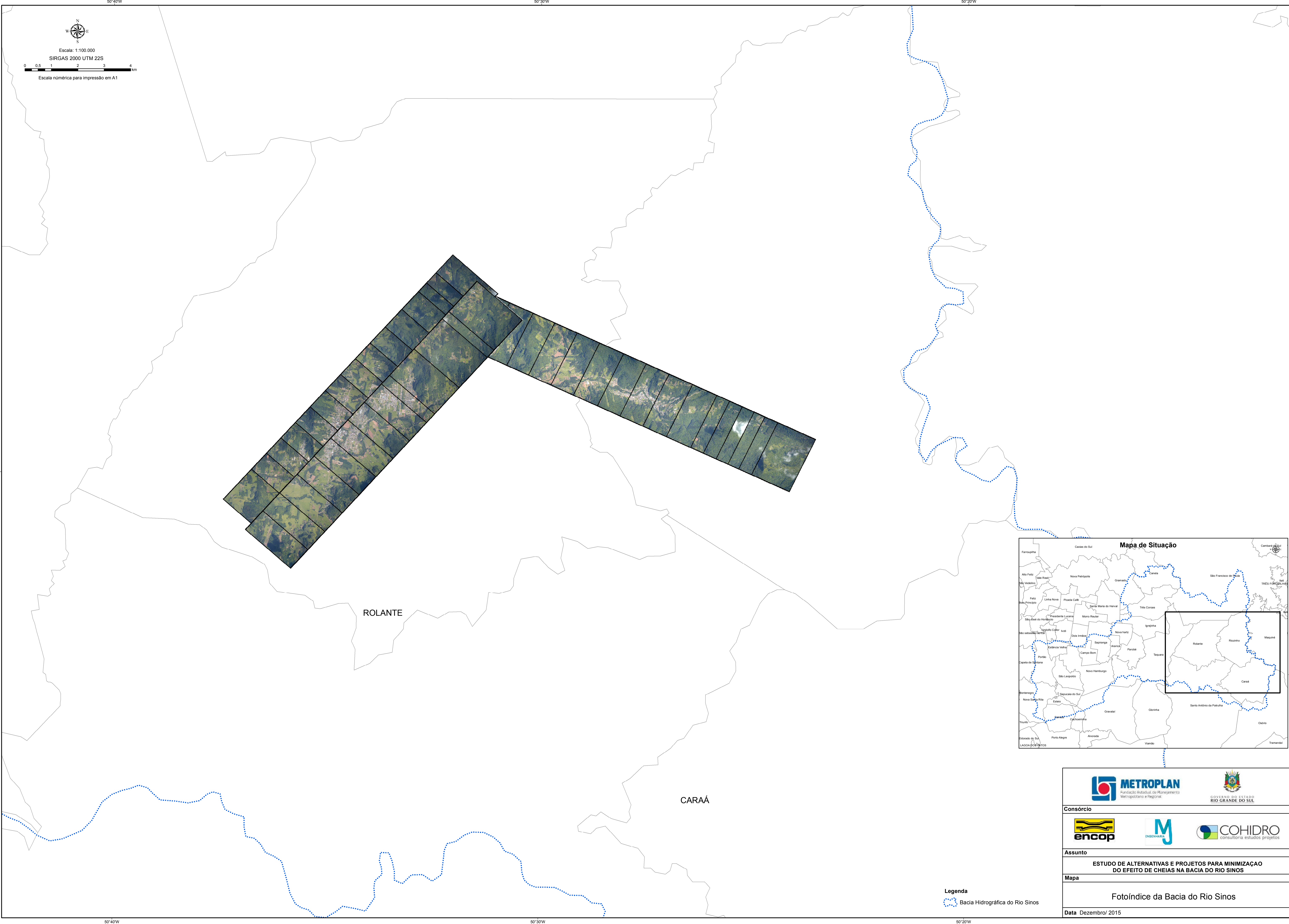
 Fundação Estadual de Planejamento Metropolitano e Regional	
Consórcio	
	
Assunto	
ESTUDO DE ALTERNATIVAS E PROJETOS PARA MINIMIZAÇÃO DO EFEITO DE CHEIAS NA BACIA DO RIO SINOS	
Mapa	
Fotoíndice da Bacia do Rio Sinos	
Data Dezembro/ 2015	

Legenda
 Bacia Hidrográfica do Rio Sinos



 Fundação Estadual de Planejamento Metropolitano e Regional	
Consórcio	
	
Assunto	
ESTUDO DE ALTERNATIVAS E PROJETOS PARA MINIMIZAÇÃO DO EFEITO DE CHEIAS NA BACIA DO RIO SINOS	
Mapa	
Fotoíndice da Bacia do Rio Sinos	
Data Dezembro/ 2015	

Legenda
 Bacia Hidrográfica do Rio Sinos



 
Consórcio
 
Assunto
ESTUDO DE ALTERNATIVAS E PROJETOS PARA MINIMIZAÇÃO DO EFEITO DE CHEIAS NA BACIA DO RIO SINOS
Mapa
Fotoíndice da Bacia do Rio Sinos
Data Dezembro/ 2015

Legenda
Bacia Hidrográfica do Rio Sinos

ANEXO 16 - PLANILHAS DE RESOLUÇÃO

Este anexo está sendo apresentado somente em mídia digital.