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Introduction

A detail GPS gravity survey designated as Numery Deeps Gravity Survey has been carried out in an area approximately 175 kilometres east of Alice Springs in Northern Territory as an extension of a previous survey conducted in July 2002. This survey was conducted over 2 days from 11 May 2003 to 12 May 2003 on behalf of Linzy Johannsen.

The originally proposed survey was for 130 stations in 13 south-north lines coincident with MGA94 and with variable line and station spacing. The proposed area of the survey was bounded by MGA94 Zone 53 coordinates 560000E 7393800 in the south-west and 566300E 7398500N in the north-east. Prior to the commencement of the survey an additional 38 station in 6 lines were added, extending the survey to 567500E 7398500N in the north-east. The survey was completed as proposed with 3 observations repeated for quality control purposes and a further 7 stations from the original survey also reobserved but since no effort was made to reoccupy the original positions, these have not been included as repeats.

The Bouguer anomaly processing has been performed using a country rock density of 2.67 g/cc.

The data presented with this report includes both AMG66 and MGA94 coordinates.

Figure 1 below shows the location of the survey area.

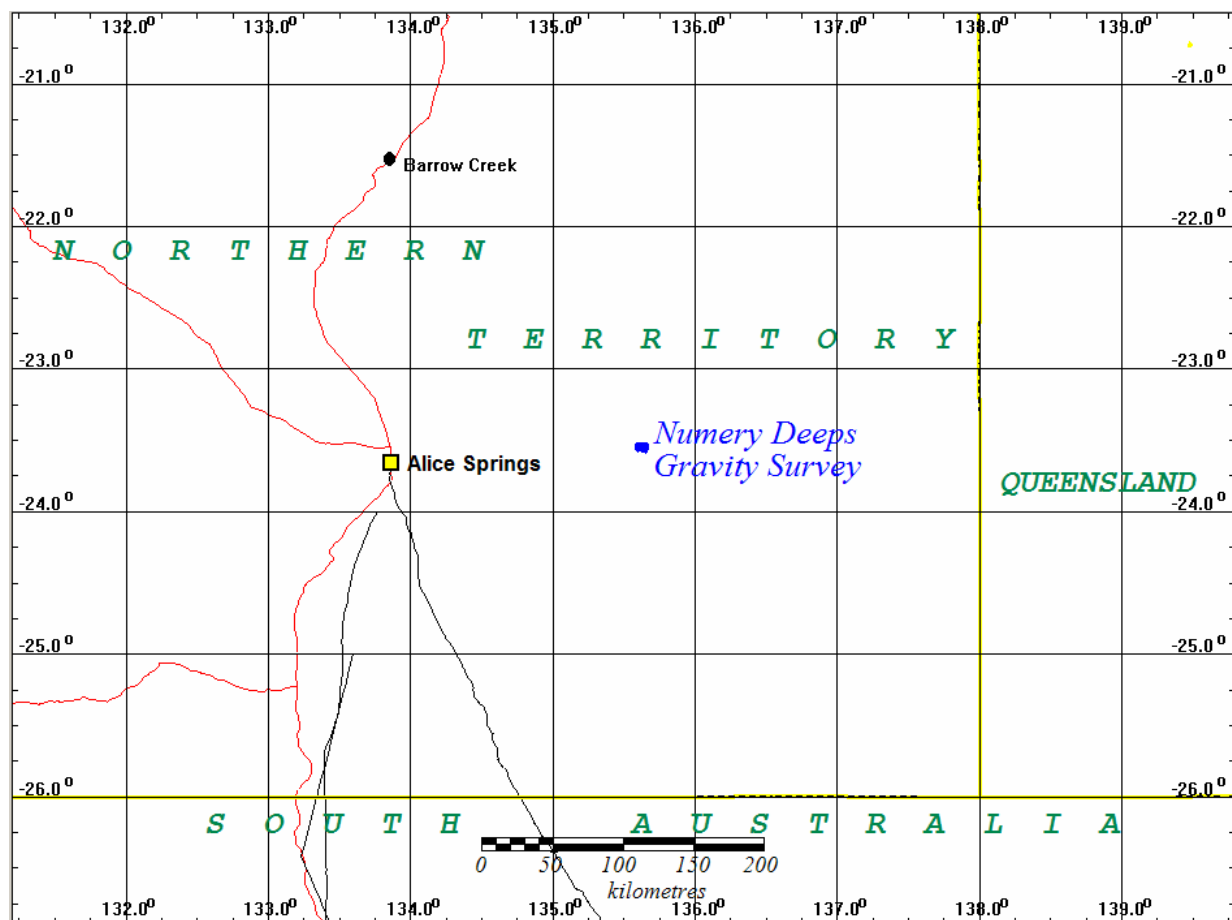


Figure 1. Location Diagram

GPS Observations and Processing

Carrier phase GPS data has been collected using *Trimble 4000* series Geodetic receivers.

Measurements for detail gravity observations have been made using Real Time Kinematic (RTK) techniques giving horizontal and vertical precisions of at least 5 cm.

RTK processing has been completed using Trimble TDC1 firmware and TRIMMAP Version 6.50 software.

The GPS horizontal coordinates (WGS84 datum) have been adopted from the GDA94 values using a nul transformation process. The WGS84/GDA94 Latitude and Longitude have then been converted into MGA94 Zone 53 grid coordinates using TRIMMAP Version 6.50 software.

The GPS ellipsoidal heights (WGS84 datum) have been corrected to orthometric heights (AHD) using the AusGeoid98 geoid model for the control and the gravity stations.

Details of Horizontal and Vertical control are given in the sections below.

Gravity Observations

Gravity measurements have been made using *Scintrex CG3 Autograv* instruments. The instrument number 403244 was used in this project.

Readings of 120 seconds were taken at base station. Readings of 40 seconds were taken at all other gravity survey points.

Base station readings were taken at the beginning of the day and at the end of the day's fieldwork.

The CG3 instrument applies an instrument drift correction to its final gravity reading. Any residual drifts between base station readings are corrected by the gravity post processing software. The instrument also applies Earth Tide Correction to its final gravity reading at each station. The instrument calibration constants are contained in the daily gravity data files.

Survey Control

No new local gravity/GPS base stations were established for this survey. See the report for the August 2002 survey for details of the fixing of HS000201.

Control information (**WGS84 heights have been derived using AusGeoid98**):

NUMERY DEEPS SURVEY / GRAVITY CONTROL

Station	GDA94/WGS 84			MGA94 Zone 53		AHD	Isogal84
	Latitude	Longitude	Height	Easting	Northing	Height	Gravity mgal
HS002010	-23° 33' 04.29228"	135° 37' 29.43829"	376.195	563772.877	7395322.322	353.119	978758.455

Point Numbering and Marking

An 8 digit point number is used to identify each gravity station. The first 4 digits indicate the line number. The second 4 digits indicate the station number

The grid the lines are south-north and the 8 digits are constructed from the planned AMG coordinates for each gravity station using

Line No = (MGA E– 500000) / 10 Stn No = (MGA N– 7300000

eg. Planned gravity station MGA94 coordinates

561000.000E

7394000.000E

Line No = 6100

Station No = 9400

i.e. Pt No = 61009400

Station numbers have not been expanded in the processed data.

The gravity stations have not been marked in the field.

Gravity Processing

The gravity values for this survey are related to the *Australian Gravity Base Station Network* using the *Isogal84 (IGSN 71)* values at known Gravity Stations as provided by DMR.

Note that all gravity values shown in these surveys are expressed in units of milligals.

The field gravity observations have been processed using standard formulae and constants to produce a Bouguer Anomaly for each gravity station.

The meter reading as recorded in the raw Scintrex data file is corrected for instrument tilts, meter drift and Earth Tide. Post processing corrections are detailed below.

Drift

The residual drift between base station readings is calculated for each station reading proportionately by time. This is the drift value shown in the processing output.

$$\text{Drift} = [(t_1 - t_n) ((b_2 - b_1) / (t_2 - t_1))]$$

- t_n = time of meter reading at each station
- b_1 = base meter reading prior to station reading
- t_1 = time of base reading b_1
- b_2 = base meter reading after station reading
- t_2 = time of base reading b_2

Obs mgal

This is the observed gravity value in milligals.

$$\text{Obs} = b_g + (r_n - \text{drift}) - b_1$$

- b_g = base stn gravity value (Isogal84)
- r_n = meter reading at each station as shown in the CG3 .dat file
- drift = residual drift correction as shown above
- b_1 = base meter reading prior to station reading

Anom

This is the difference between the observed gravity and the theoretical gravity value at each station. The theoretical value is calculated using the *1967 International Gravity Formula*.

$$\text{Anom} = \text{Obs} - g_{th}$$

Obs = observed gravity as explained above

$$g_{th} = 978031.8 (1 + 0.0053024 \sin^2\phi - 0.0000059 \sin^2 2\phi)$$

ϕ = WGS84 Latitude

Freeair corrn

The freeair correction is calculated using

$$\text{Freeair corrn} = 0.3086 H$$

H = height above sea level (AHD height)

Bouguer corrn

$$\text{Bouguer corrn} = -0.04191 \rho H$$

ρ = density (2.67 g/cc used for this survey)

H = height above sea level (AHD height)

Bouguer Anom

$$\text{Bouguer Anom} = \text{Anom} + \text{Freeair corrn} + \text{Bouguer corrn}$$

Results Formats

Printed results of the gravity processing (with Bouguer corrections at density 2.67 g/cc) are included in the Appendix of this report. The results are also supplied in digital form on floppy disk with the following of files being supplied:

ALLCOR.XYZ ALLGEO.XYZ ALLCSV.CSV

Field gravity observation files with the extension .DAT and .DC are also supplied in a separate subdirectory named OBS.

ALLCOR.XYZ format

This is a *GEOSOFT* compatible XYZ (space delimited columns) file. The data is sorted by Day then Line and Stn number. The column order is as follows:

MGA E	MGA N	Line	Stn	drift	corr'd	obs	anom	freeair	bouguer	bouguer	height
					meter	mgal		corr	corr	anom	(AHD)
										(2.67)	

ALLGEO.XYZ format

This is a *GEOSOFT* format XYZ (space delimited columns) file. The data is sorted into Line and Stn number suitable for profiling. The column order is as follows:

Line	Stn	MGA E	MGA N	drift	corr'd	obs	anom	freeair	bouguer	bouguer	height
					meter	mgal		corr	corr	anom	(AHD)
										(2.67)	

ALLCSV.CSV Format

This is a Comma Separated Variable format file. This format facilitates data import into spreadsheet and database software. Each record (line) contains the following data fields:

Pt Number, Line No, Station No, Date, Day Number, Local Time, WGS Latitude, WGS Longitude, WGS Height, MGA East, MGA North, AHD Height, Meter reading, Meter reading standard deviation, Earth Tide Correction, drift correction, corrected meter reading, gravity difference (mgal) from base, observed gravity (mgals), gravity anomaly, freeair correction, Bouguer correction (2.67), Bouguer anomaly

*.DAT

These are the raw data files from the *Scintrex* CG3 gravimeter. There is a separate file for each day's data and for each field party. The files are identified by the Julian day number (001 = Jan 1st) with the prefix G. eg. G132 = day 132 (12th May).

*.DC

These are the GPS Real Time Kinematic Data Collector files. They are ASCII format files containing the GPS vectors from the base station. The data is structured in a Trimble format (DC file Version 4).

PRODUCTION LOG

Numery Deeps Gravity Survey Production Log

Date	GPS Day	Observed	Repeats	Comments
11-May-03	D131	66		Mobilise to Numery Deeps, commence gravity survey
12-May-03	D132	102	3	Complete gravity survey, depart Numery Deeps
	Total	168	3	

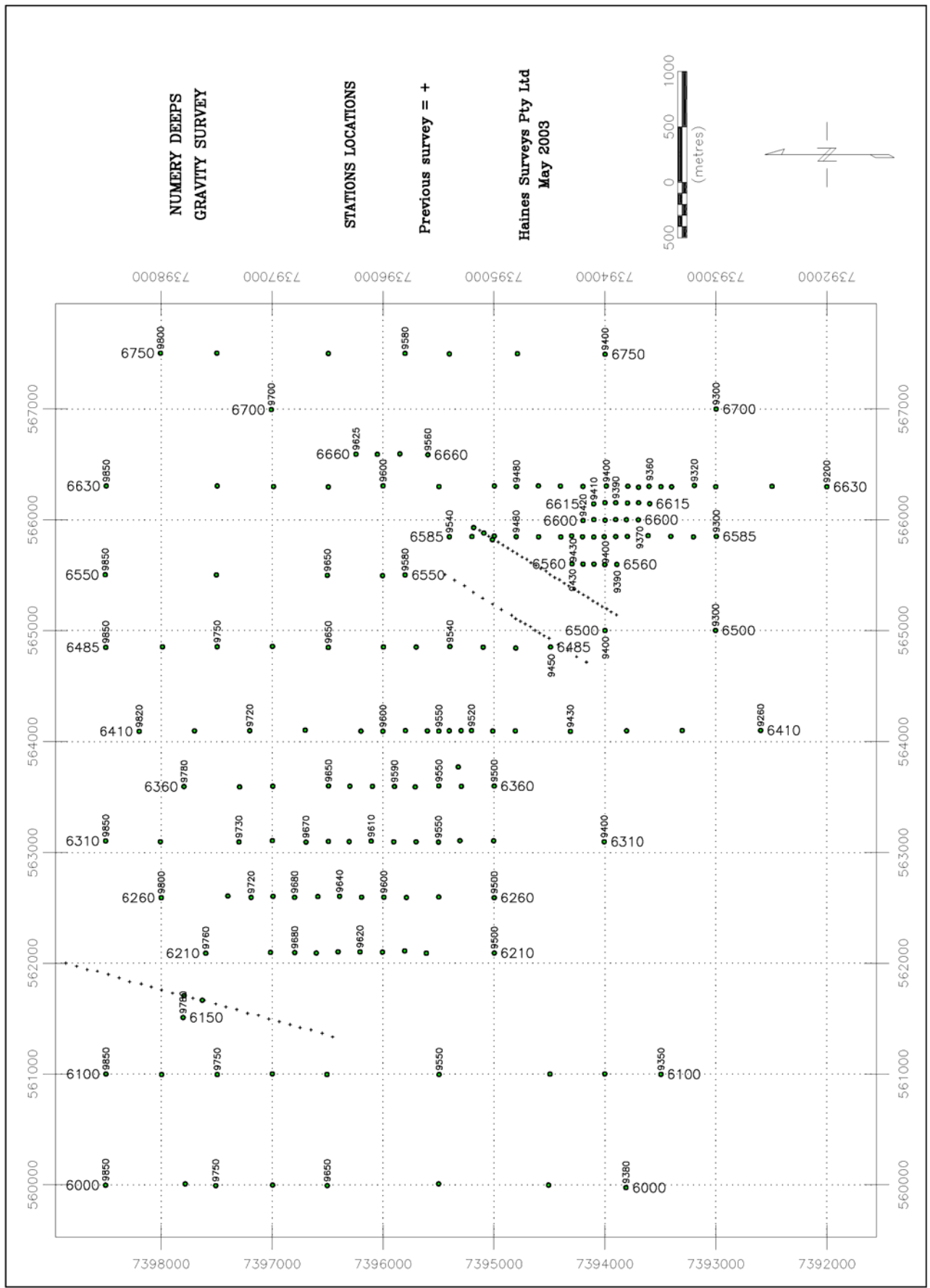
Repeat Observation Results

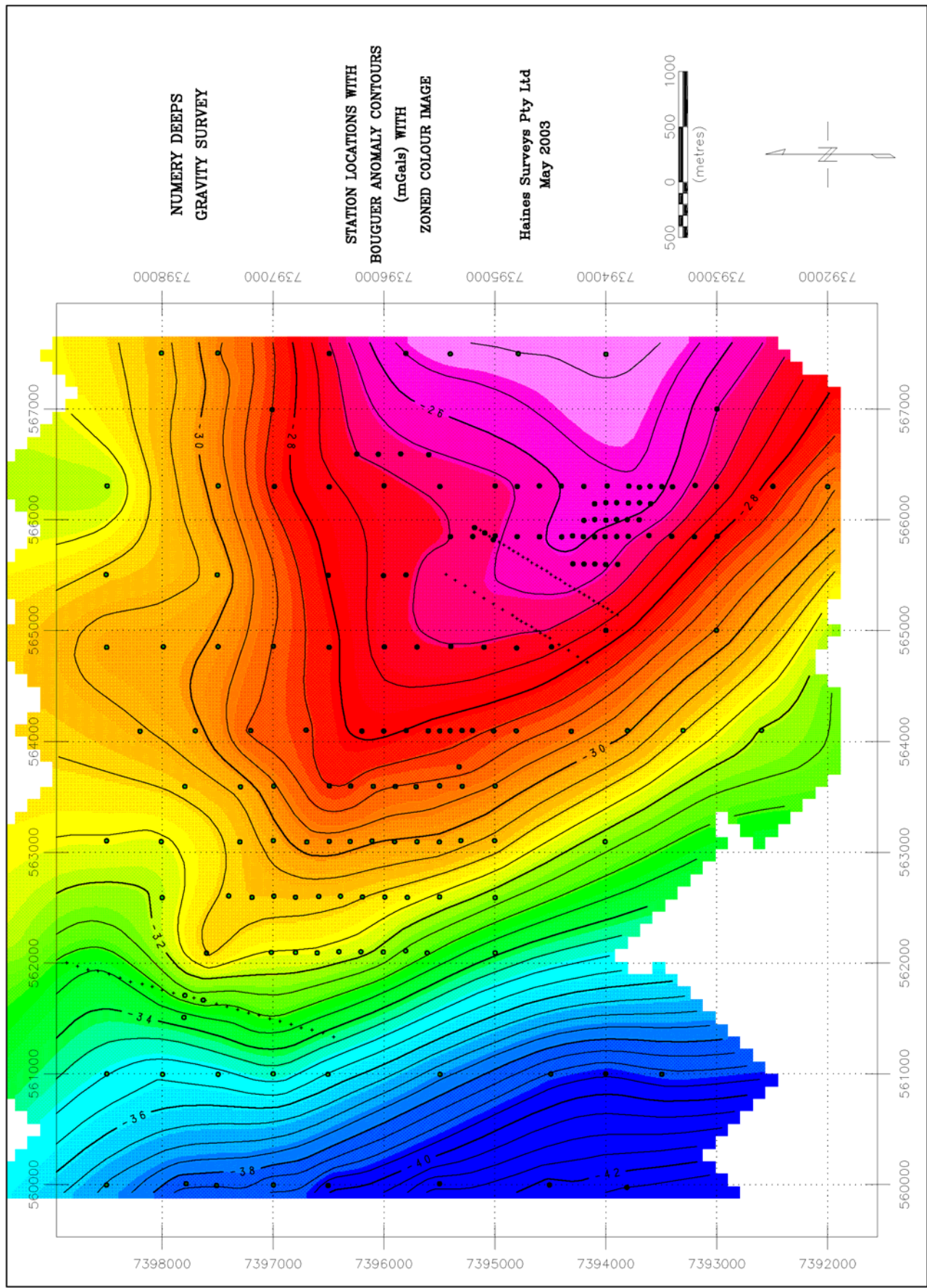
Pt	Day1	Day2	Diff E	Diff N	Diff Hgt	Diff g	Diff BAn	Vector	Abs Diff g	Abs Diff BAn
10000100	185	131	0.601	-11.242	-0.008	0.118	0.110	11.258	0.118	0.110
10000101	185	131	-5.554	-3.609	0.031	0.070	0.074	6.624	0.070	0.074
10000102	185	131	3.302	-10.127	-0.015	0.081	0.072	10.652	0.081	0.072
20000126	185	132	0.427	5.709	0.202	-0.054	-0.010	5.725	0.054	0.010
20000128	185	132	-2.532	-17.509	-0.906	0.207	0.018	17.691	0.207	0.018
64109550	131	132	-0.004	0.001	-0.010	-0.016	-0.018	0.004	0.016	0.018
64109560	131	132	-0.032	0.001	0.000	-0.001	-0.001	0.032	0.001	0.001
66309350	131	132	0.044	-0.119	0.030	-0.053	-0.047	0.127	0.053	0.047

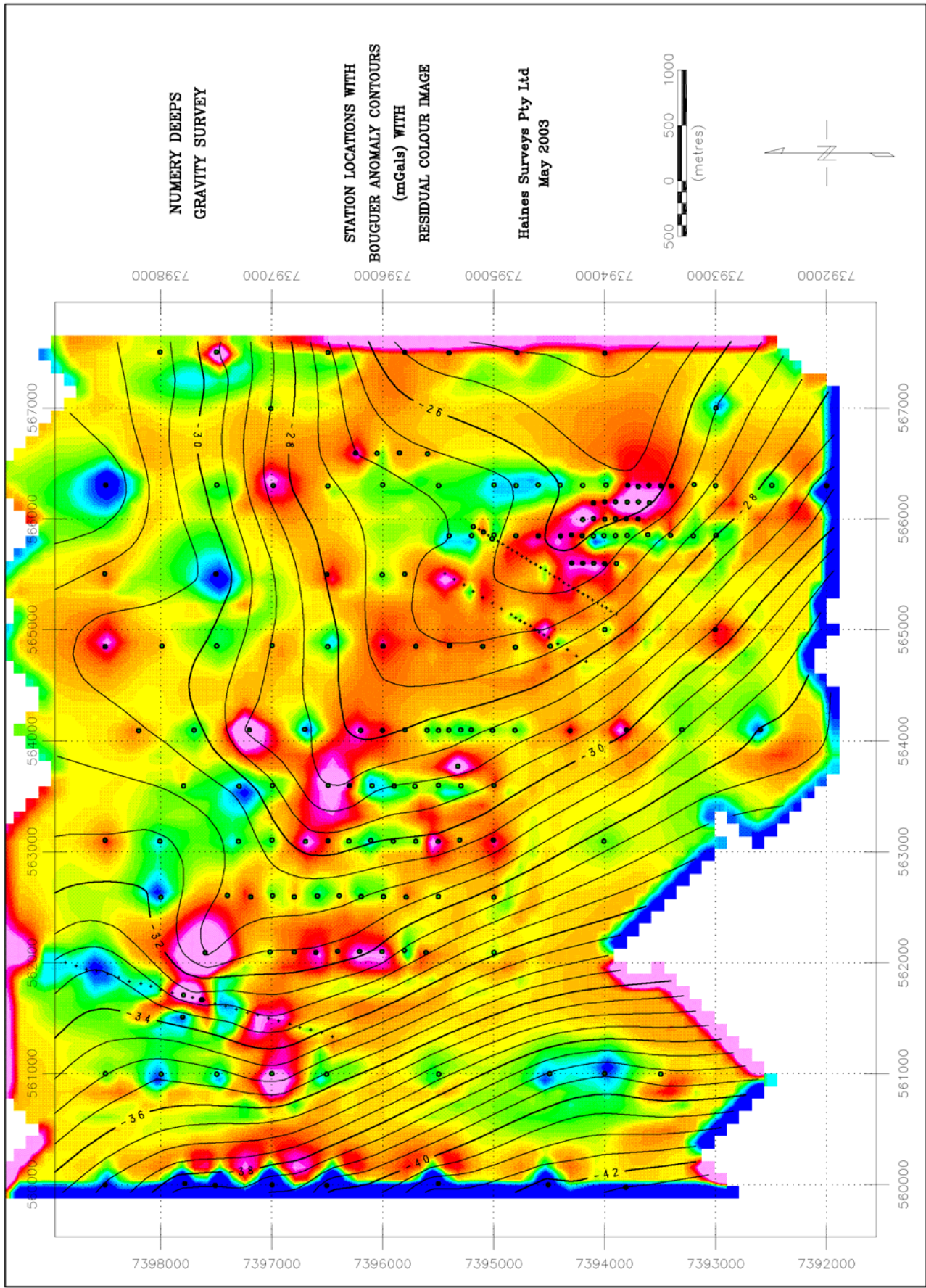
Mean	0.007	0.005	0.952	0.017	0.020
Min	-0.032	-0.033	0.196	0.002	0.001
Max	0.048	0.035	5.745	0.048	0.035
Count	11	11	11	11	11
SD	0.022	0.024	1.617	0.015	0.012

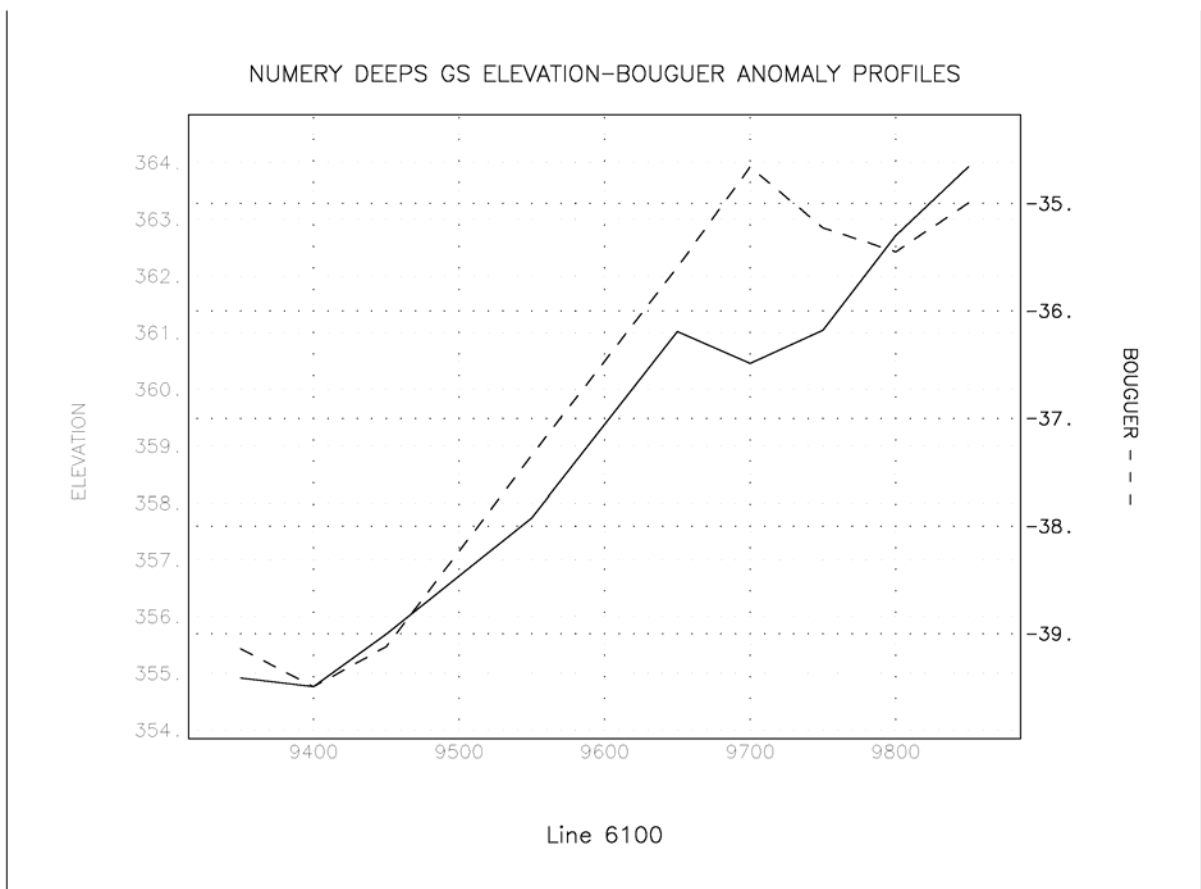
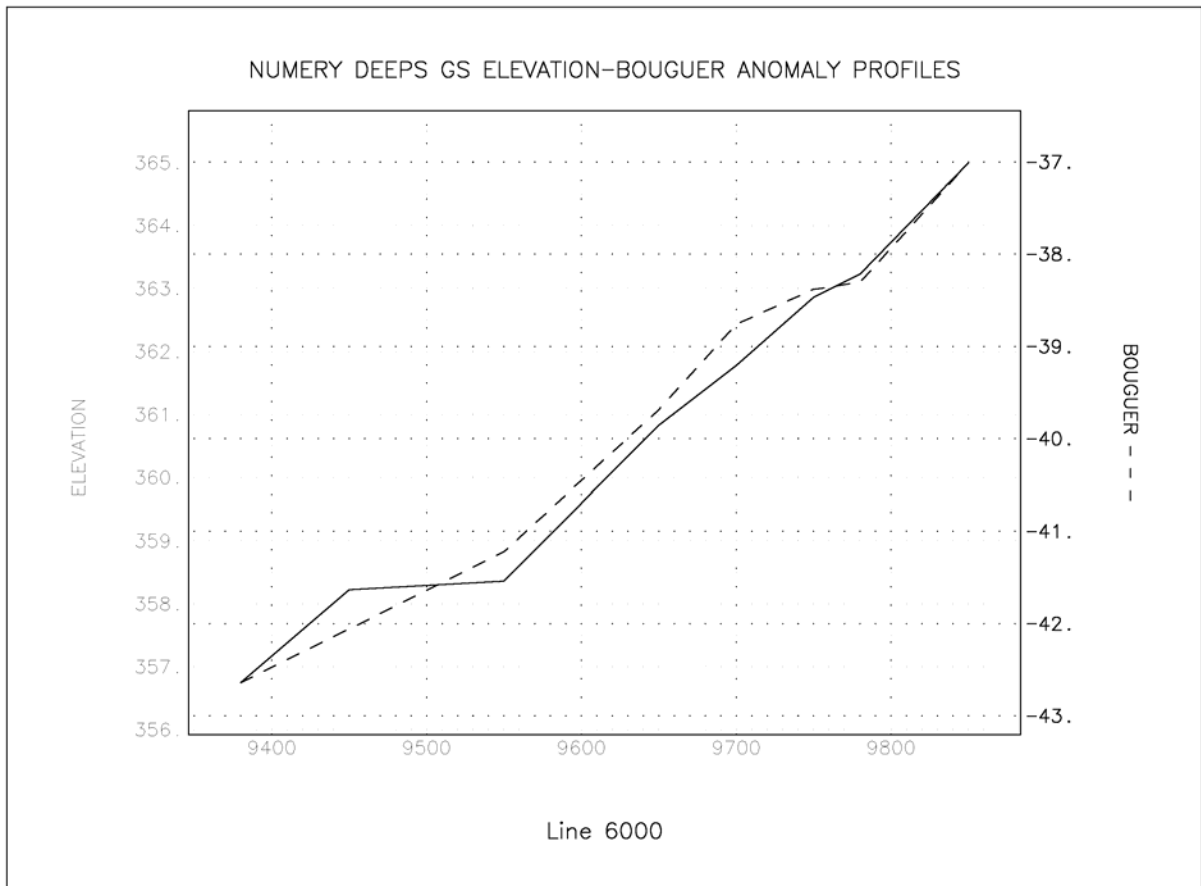
Plots

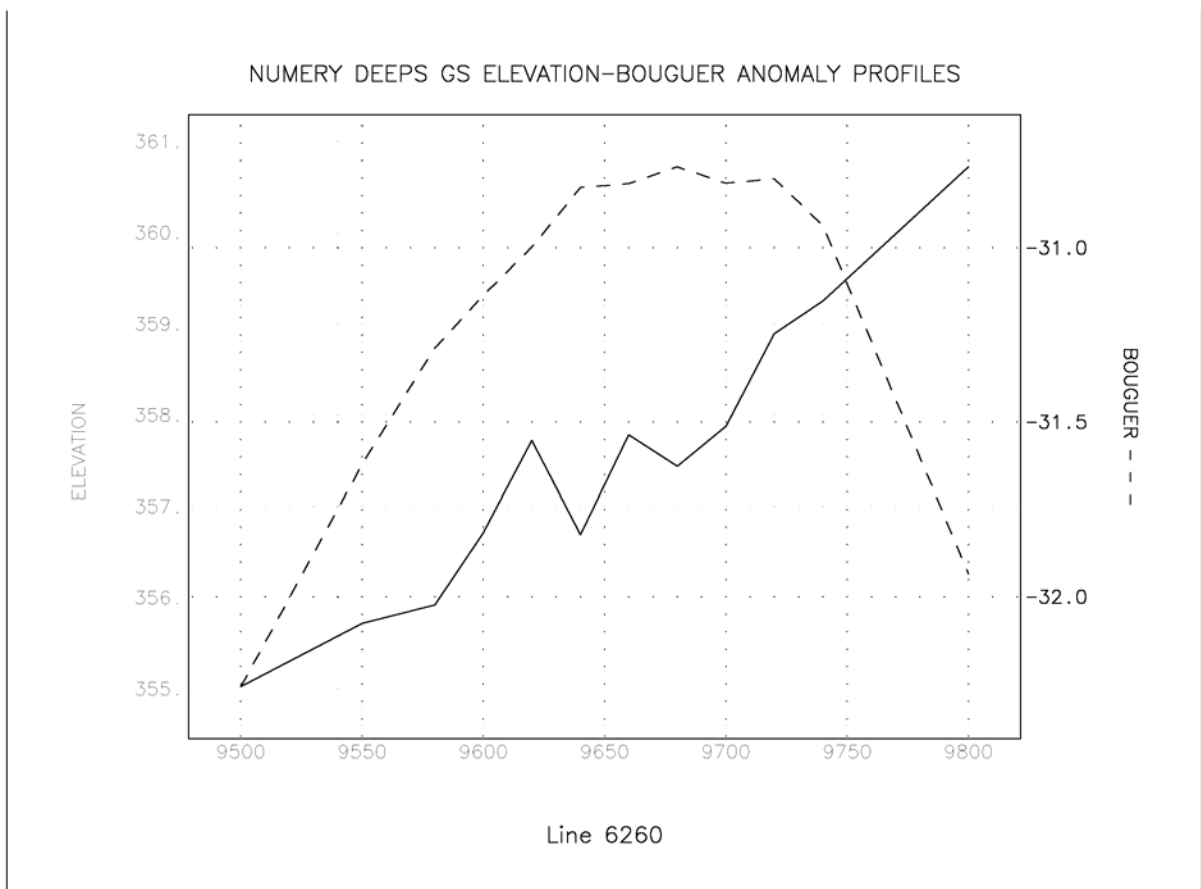
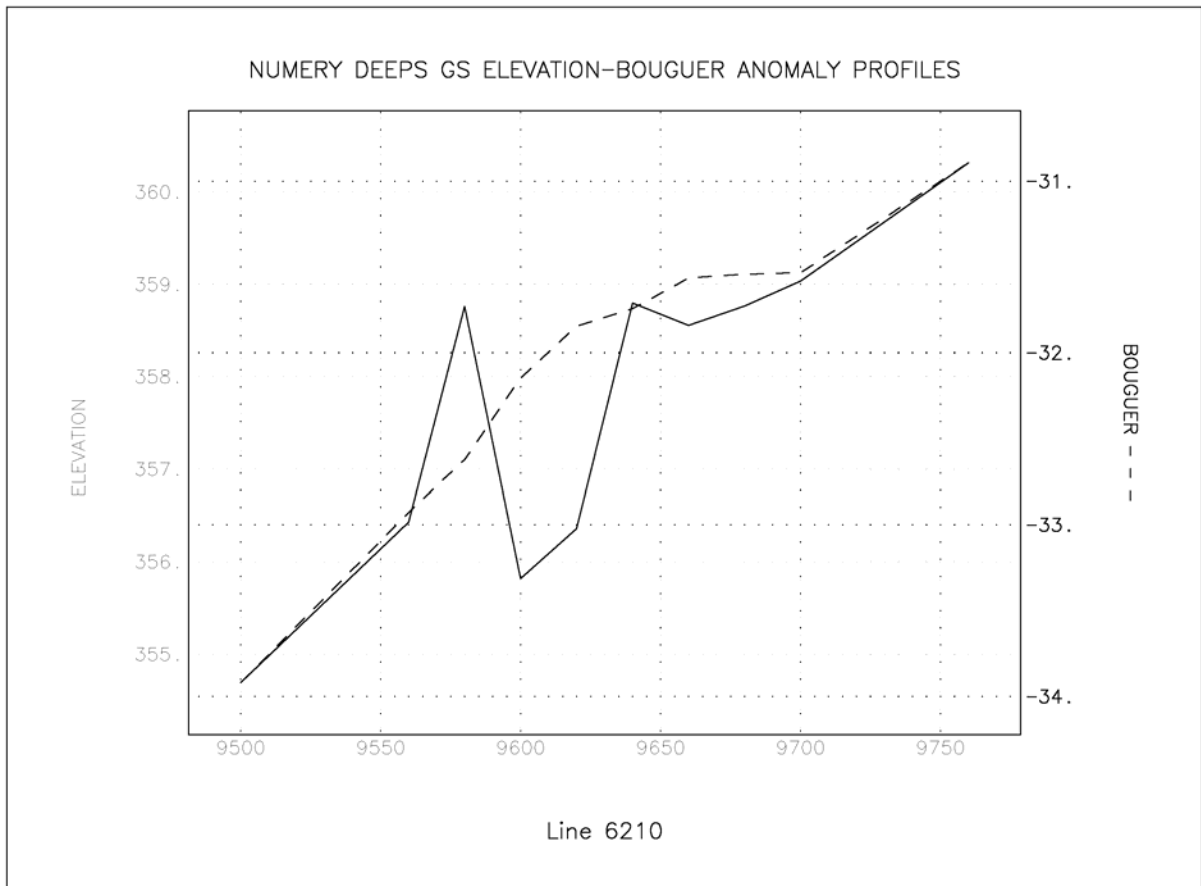
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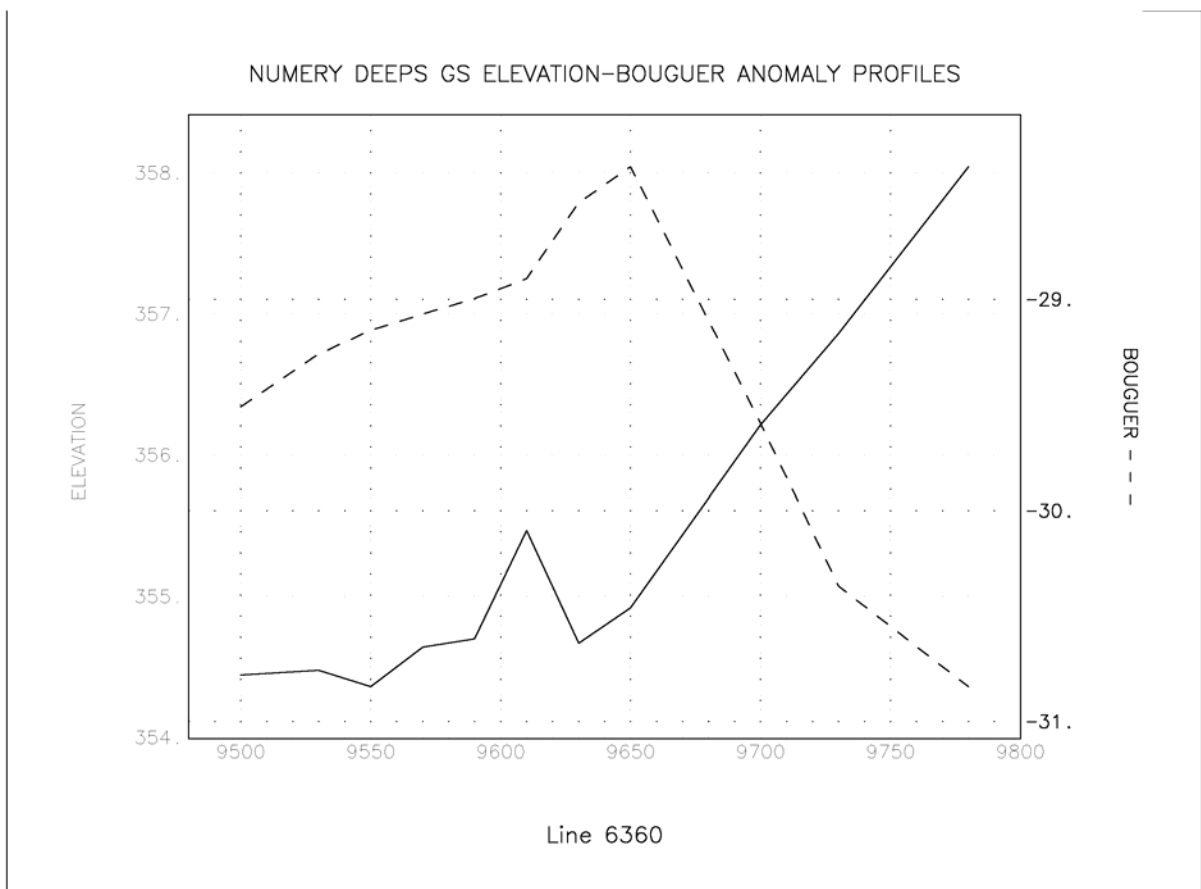
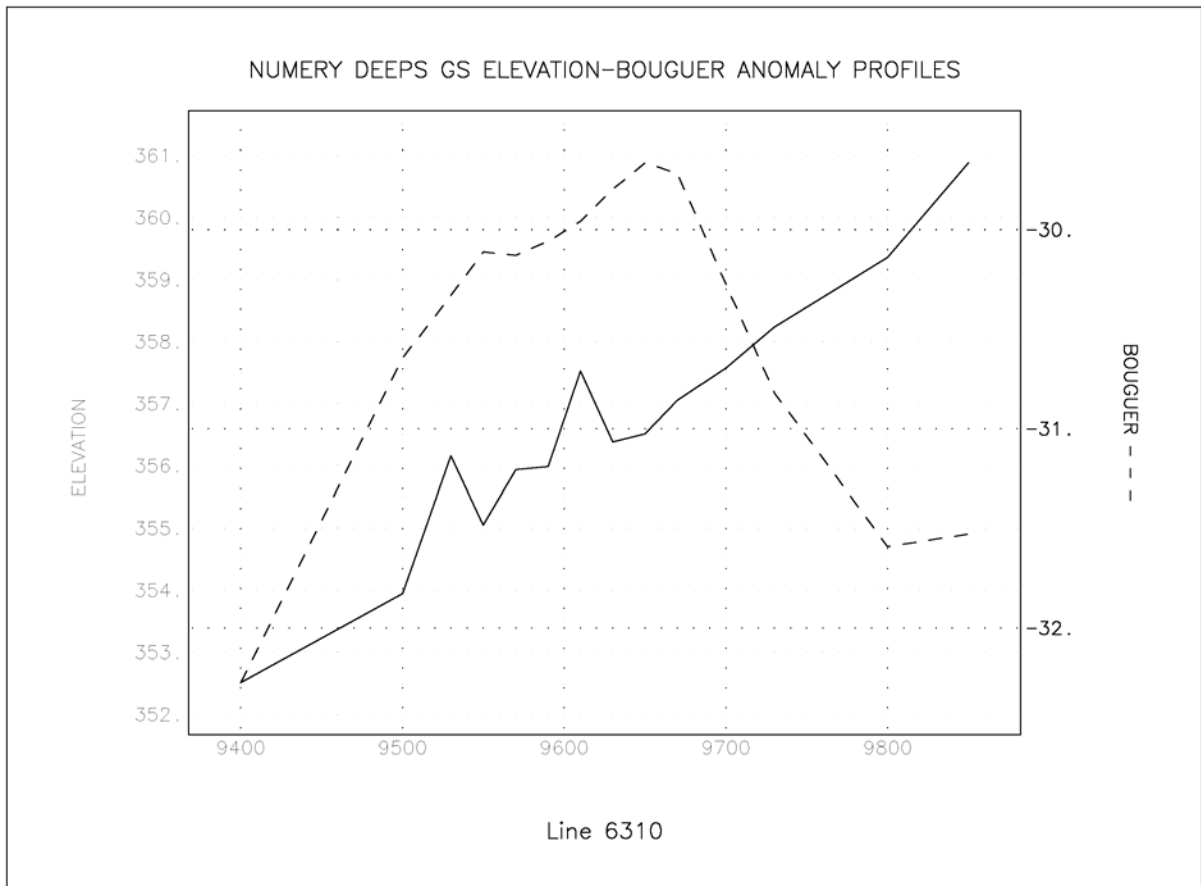


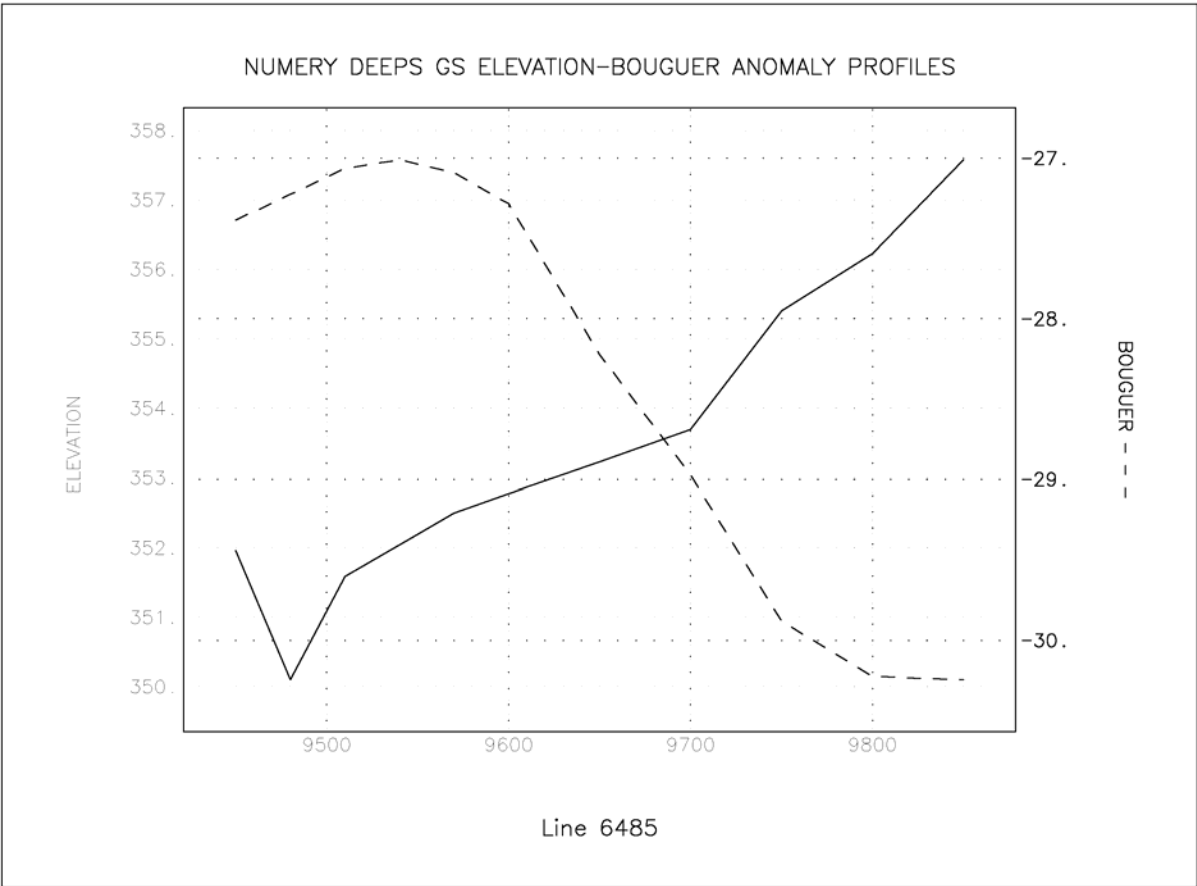
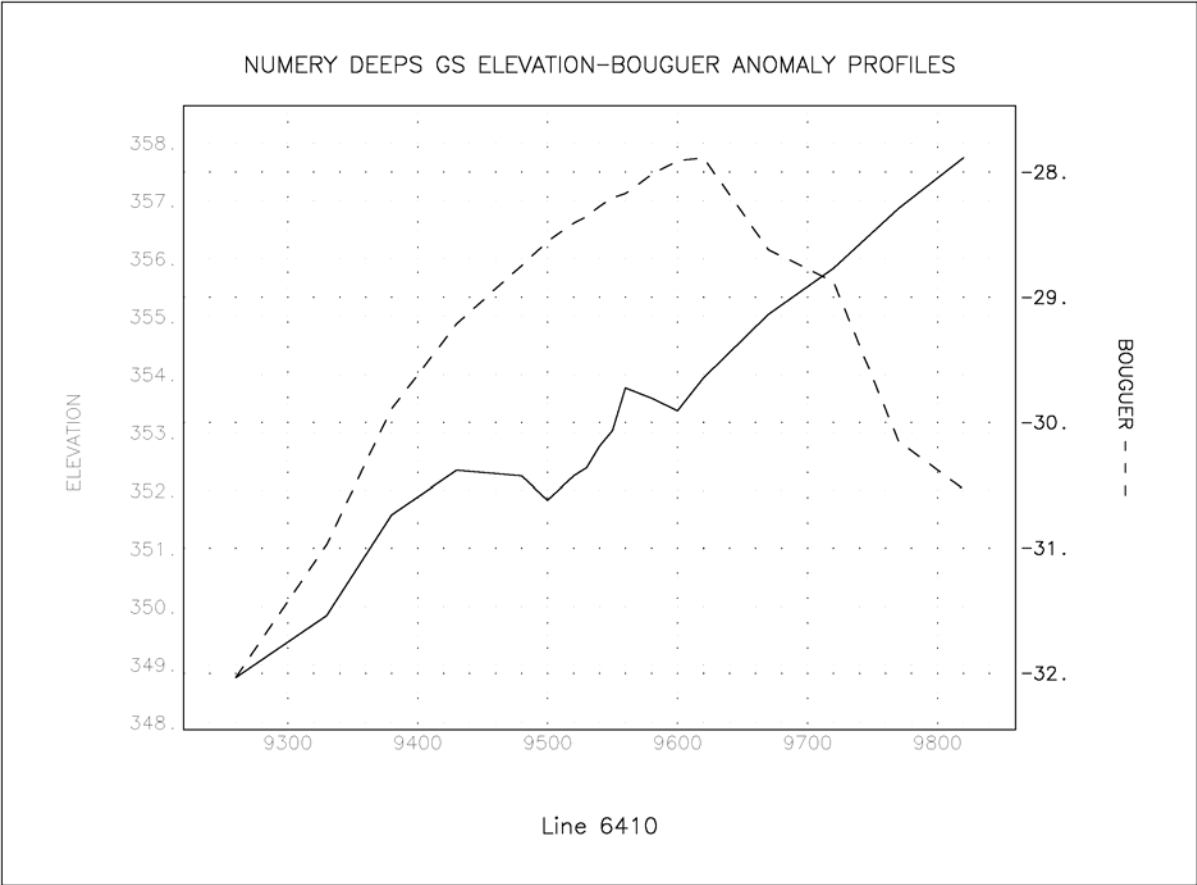


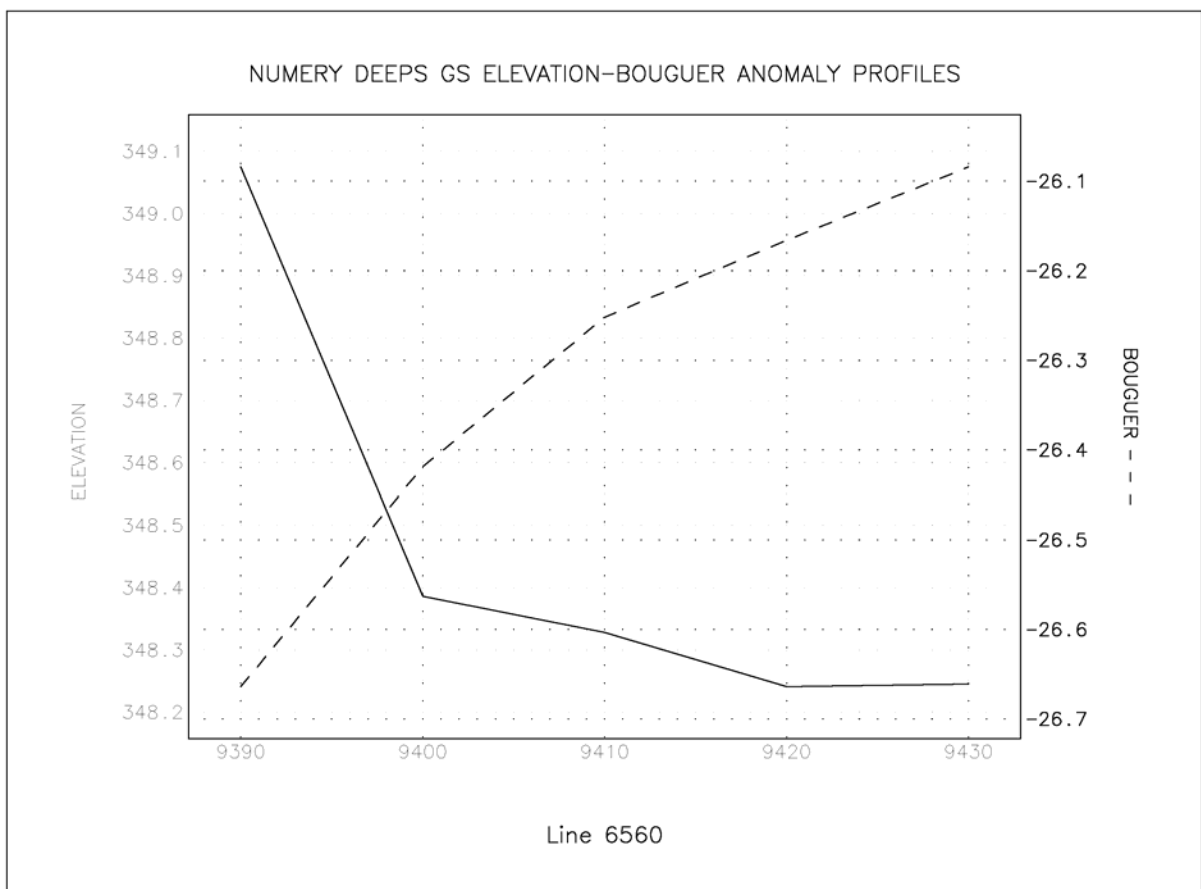
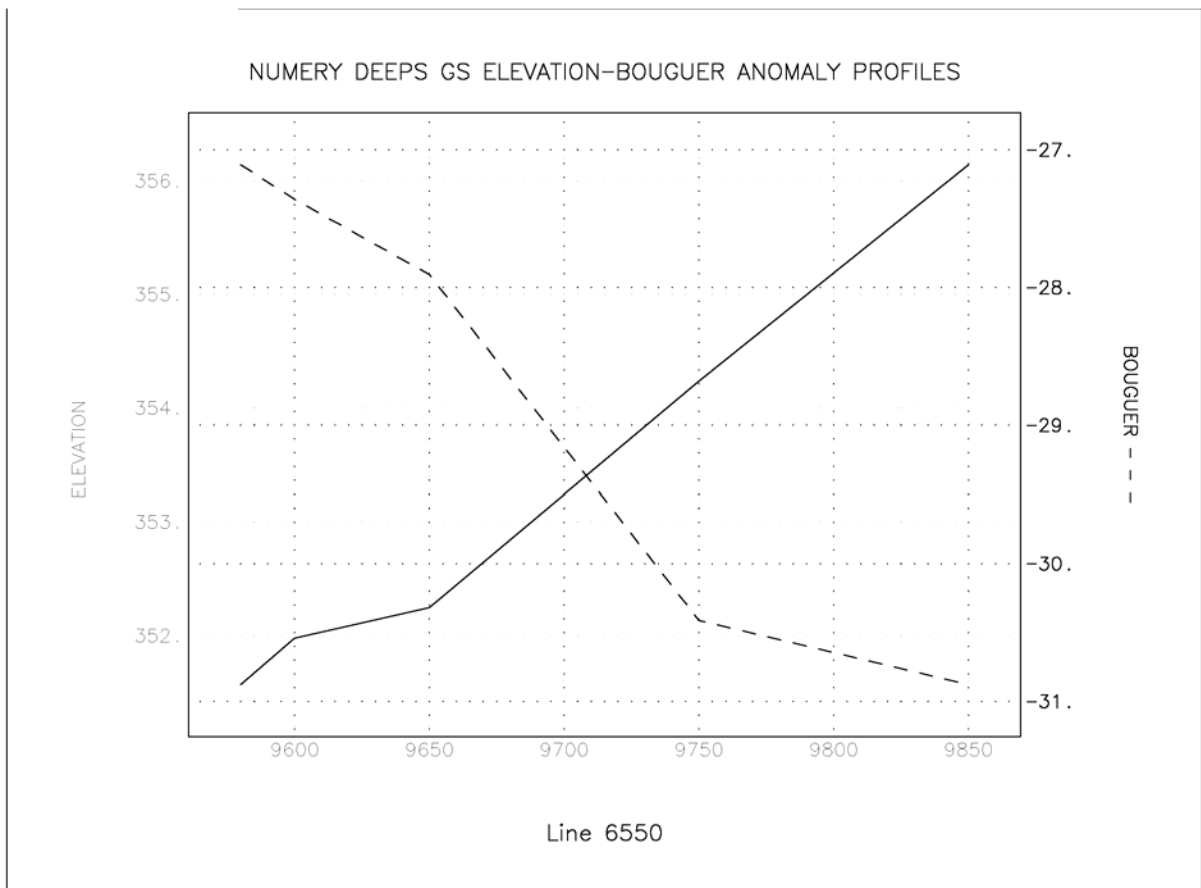


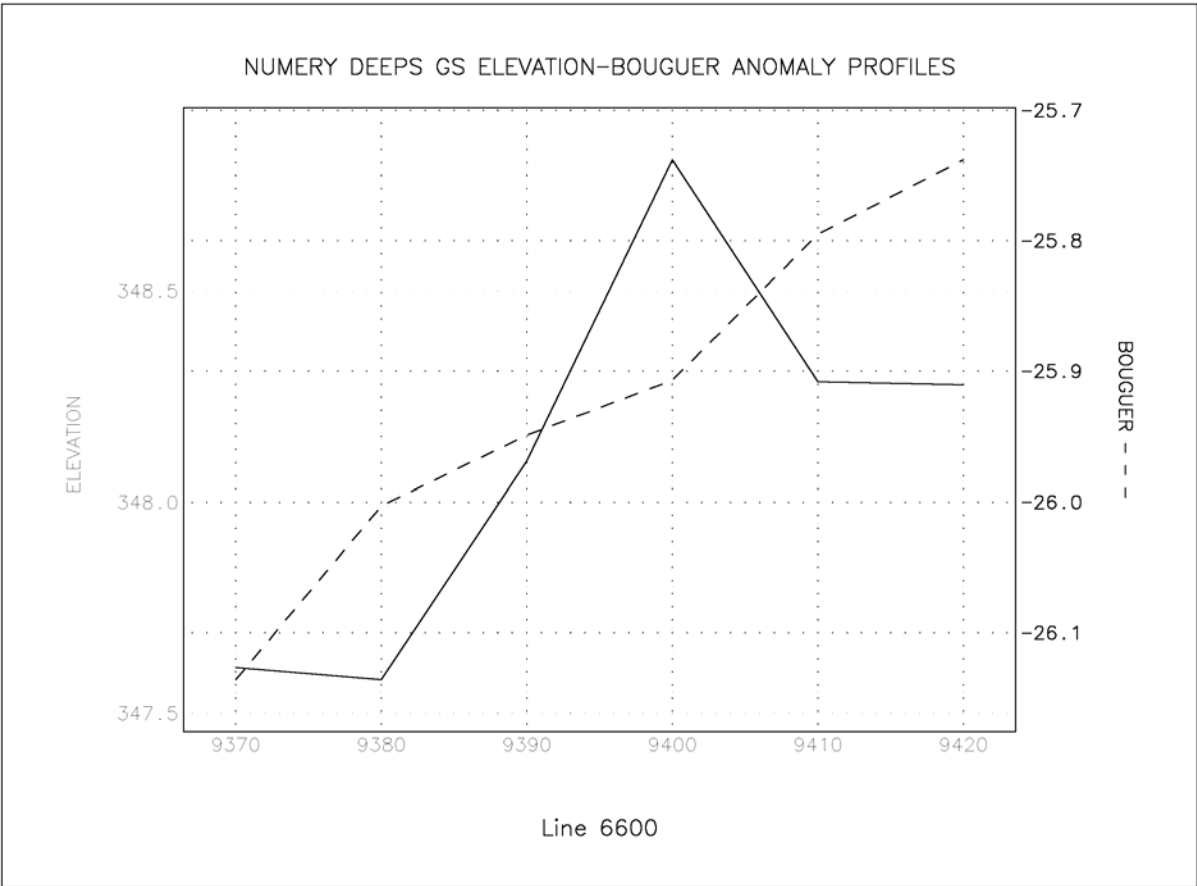
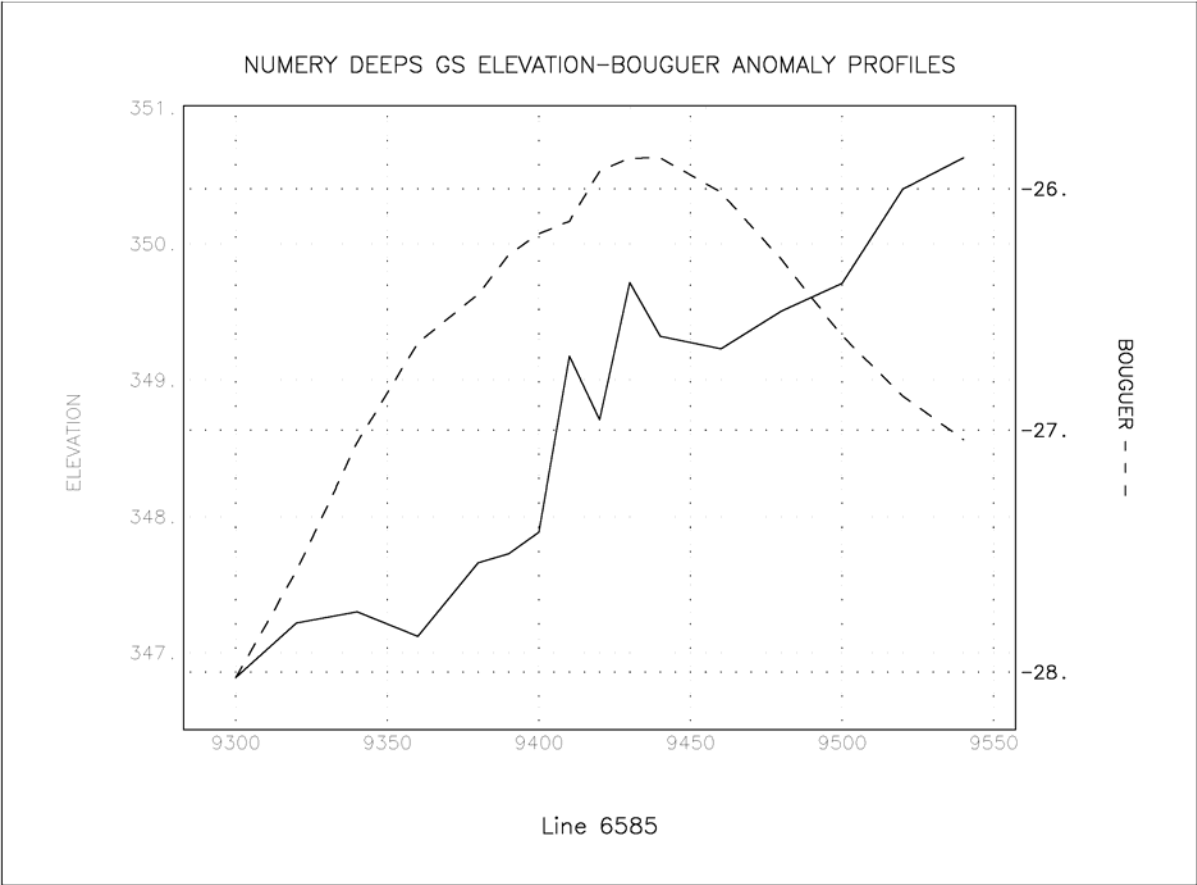


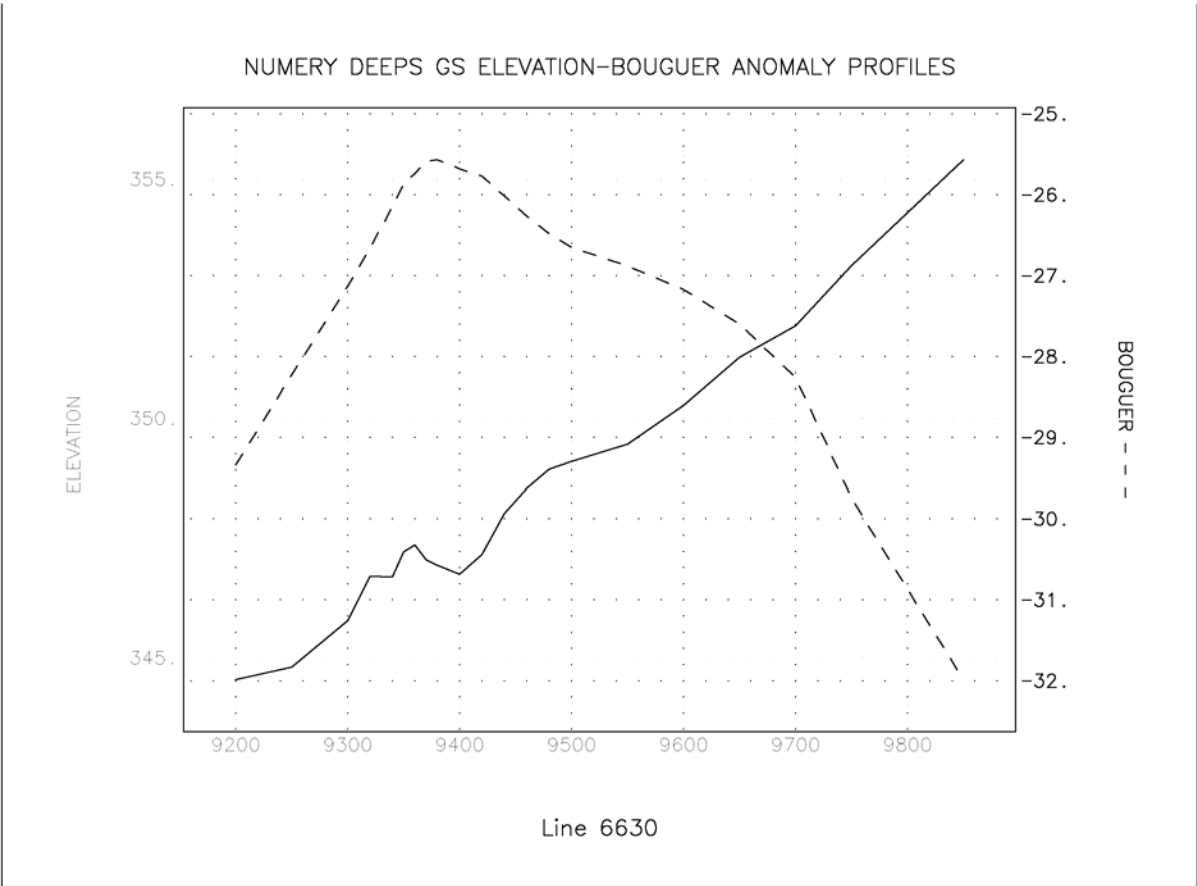
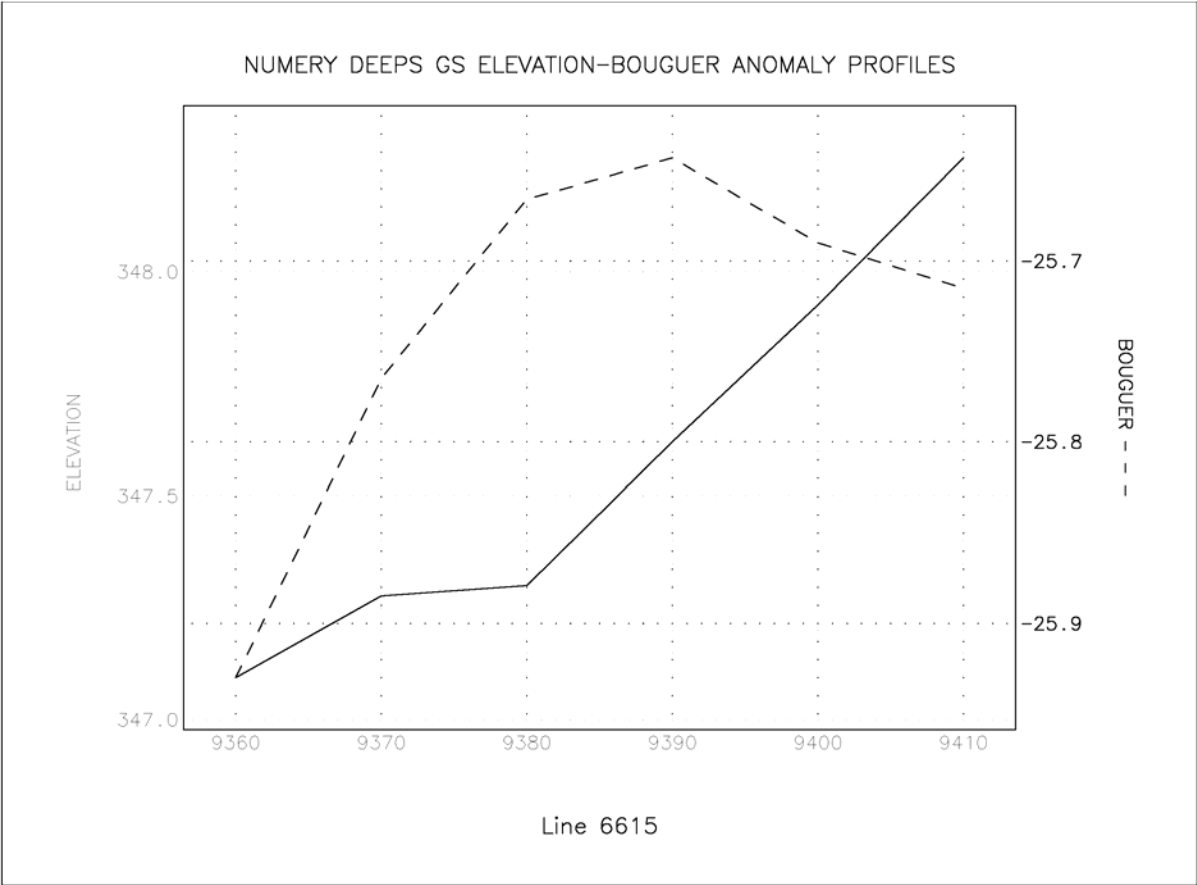


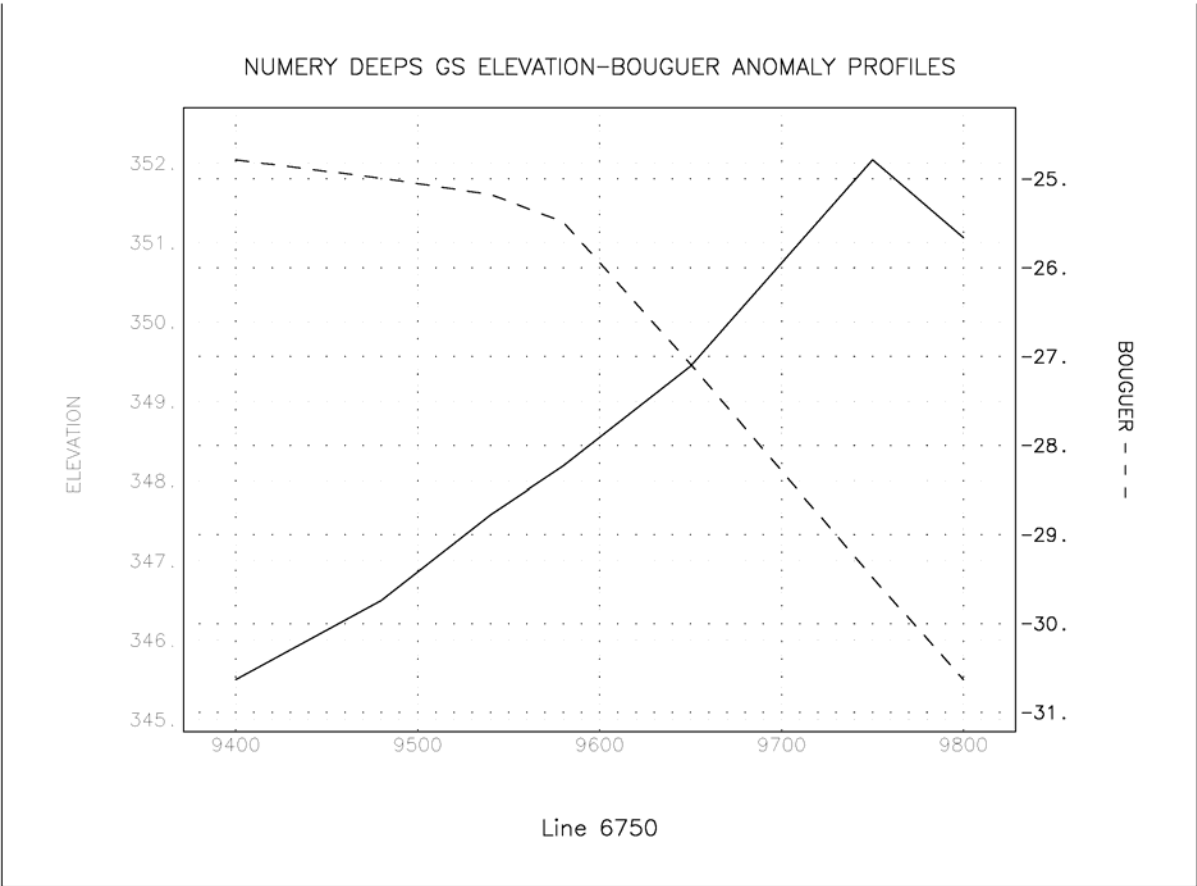
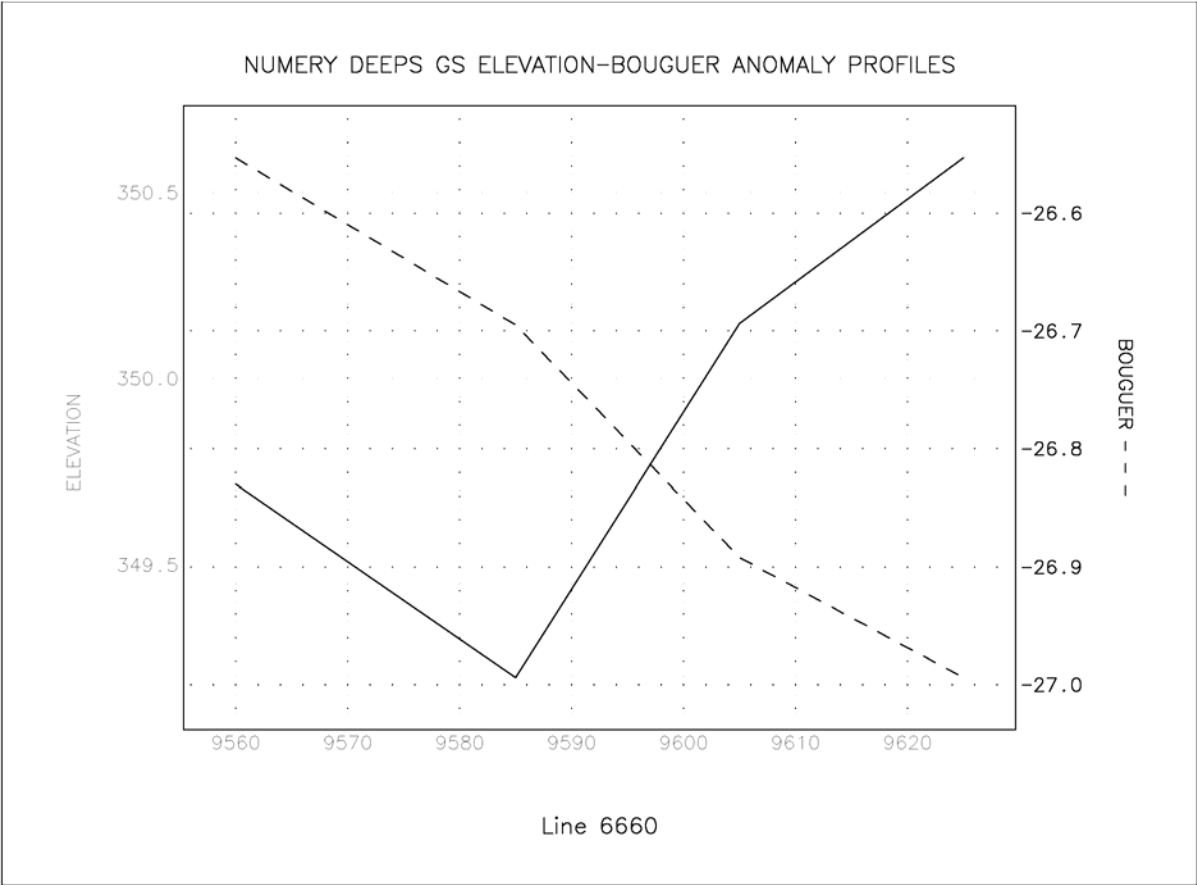












Gravity Processing Results

/	MGA94	COORDS	GRID	drift	corr'd	obs	anom	freeair	bouguer	bouguer	hght
/	E	N	x	y	meter	mgal		corr'n	corr'n	anom	(AHD)
/									(2.67)		
/D185											
563772.9	7395322.3	0	2010	+0.000	4286.610	978758.455	-98.205	108.973	-39.514	-28.746	353.119
563772.9	7395322.3	0	2010	+0.005	4286.610	978758.455	-98.205	108.973	-39.514	-28.746	353.119
563772.9	7395322.3	0	2010	+0.050	4286.605	978758.455	-98.205	108.973	-39.514	-28.746	353.119
563772.9	7395322.3	0	2010	+0.000	4286.555	978758.455	-98.205	108.973	-39.514	-28.746	353.119
563772.9	7395322.3	0	2010	-0.035	4286.555	978758.455	-98.205	108.973	-39.514	-28.746	353.119
563772.9	7395322.3	0	2010	+0.000	4286.590	978758.455	-98.205	108.973	-39.514	-28.746	353.119
565929.9	7395172.4	10000	1000	+0.006	4289.241	978761.091	-95.652	108.088	-39.193	-26.757	350.254
565905.0	7395129.6	10000	1005	+0.007	4289.377	978761.227	-95.542	108.015	-39.167	-26.694	350.017
565874.9	7395088.0	10000	1010	+0.007	4289.492	978761.342	-95.452	107.945	-39.141	-26.648	349.790
565851.4	7395046.9	10000	1015	+0.008	4289.558	978761.408	-95.411	107.920	-39.132	-26.623	349.707
565823.9	7395004.2	10000	1020	+0.009	4289.634	978761.484	-95.360	107.933	-39.137	-26.564	349.751
565797.9	7394960.2	10000	1025	+0.009	4289.679	978761.529	-95.342	108.024	-39.170	-26.488	350.044
565772.5	7394919.7	10000	1030	+0.010	4289.760	978761.610	-95.285	108.035	-39.174	-26.424	350.082
565744.7	7394873.3	10000	1035	+0.011	4289.871	978761.721	-95.202	107.989	-39.157	-26.370	349.931
565717.2	7394831.9	10000	1040	+0.011	4290.016	978761.866	-95.081	107.909	-39.128	-26.301	349.672
565694.3	7394791.1	10000	1045	+0.012	4290.092	978761.942	-95.030	107.887	-39.120	-26.263	349.603
565663.6	7394747.6	10000	1050	+0.013	4290.153	978762.003	-94.995	107.873	-39.115	-26.237	349.557
565642.1	7394704.6	10000	1055	+0.013	4290.183	978762.033	-94.991	107.897	-39.124	-26.218	349.633
565612.8	7394666.3	10000	1060	+0.014	4290.199	978762.049	-94.998	107.897	-39.124	-26.224	349.634
565588.7	7394620.1	10000	1065	+0.015	4290.215	978762.065	-95.009	107.915	-39.131	-26.224	349.693
565560.2	7394579.6	10000	1070	+0.015	4290.190	978762.040	-95.058	107.938	-39.139	-26.259	349.767
565536.2	7394532.0	10000	1075	+0.016	4290.211	978762.061	-95.066	107.956	-39.145	-26.255	349.826
565504.6	7394494.6	10000	1080	+0.017	4290.262	978762.112	-95.037	107.851	-39.107	-26.293	349.486
565479.1	7394451.8	10000	1085	+0.017	4290.317	978762.167	-95.008	107.823	-39.097	-26.282	349.394
565457.7	7394408.8	10000	1090	+0.018	4290.393	978762.243	-94.958	107.763	-39.075	-26.270	349.198
565425.3	7394367.3	10000	1095	+0.019	4290.399	978762.249	-94.977	107.703	-39.053	-26.328	349.004
565402.1	7394325.5	10000	1100	+0.019	4290.314	978762.164	-95.087	107.771	-39.078	-26.394	349.225
565373.9	7394282.2	10000	1105	+0.020	4290.265	978762.115	-95.162	107.770	-39.078	-26.470	349.222
565349.5	7394238.5	10000	1110	+0.021	4290.186	978762.036	-95.267	107.742	-39.068	-26.593	349.131
565323.4	7394193.5	10000	1115	+0.022	4290.162	978762.012	-95.318	107.692	-39.050	-26.675	348.971
565299.0	7394150.1	10000	1120	+0.022	4290.082	978761.932	-95.424	107.692	-39.049	-26.782	348.968
565267.9	7394109.7	10000	1125	+0.023	4289.958	978761.808	-95.572	107.728	-39.063	-26.907	349.086
565244.8	7394067.2	10000	1130	+0.024	4289.854	978761.704	-95.701	107.754	-39.072	-27.019	349.170
565217.2	7394024.5	10000	1135	+0.025	4289.730	978761.580	-95.851	107.789	-39.085	-27.147	349.283
565196.2	7393982.1	10000	1140	+0.025	4289.640	978761.490	-95.966	107.786	-39.084	-27.264	349.275
565167.2	7393943.0	10000	1145	+0.026	4289.566	978761.416	-96.064	107.760	-39.074	-27.378	349.189
565141.9	7393895.5	10000	1150	+0.027	4289.467	978761.317	-96.191	107.742	-39.068	-27.517	349.132
565505.3	7395440.6	10500	1000	+0.045	4288.960	978760.810	-95.775	108.366	-39.294	-26.703	351.152
565453.1	7395355.8	10500	1010	+0.044	4289.139	978760.989	-95.646	108.271	-39.260	-26.635	350.846
565403.3	7395267.1	10500	1020	+0.043	4289.193	978761.043	-95.645	108.215	-39.239	-26.670	350.663
565346.1	7395186.1	10500	1030	+0.043	4289.198	978761.048	-95.689	108.287	-39.265	-26.667	350.898
565292.0	7395100.5	10500	1040	+0.042	4289.397	978761.247	-95.541	108.163	-39.221	-26.598	350.497
565237.8	7395013.7	10500	1050	+0.041	4289.431	978761.281	-95.559	108.150	-39.216	-26.625	350.454
565189.3	7394931.8	10500	1060	+0.040	4289.390	978761.240	-95.649	108.192	-39.231	-26.688	350.589
565138.8	7394841.4	10500	1070	+0.039	4289.329	978761.179	-95.764	108.240	-39.248	-26.773	350.745
565106.6	7394802.8	10500	1075	+0.039	4289.304	978761.154	-95.812	108.235	-39.247	-26.824	350.730
565082.3	7394762.1	10500	1080	+0.038	4289.323	978761.173	-95.818	108.200	-39.234	-26.851	350.617
565059.2	7394718.3	10500	1085	+0.037	4289.347	978761.197	-95.820	108.140	-39.212	-26.892	350.421
565034.2	7394670.2	10500	1090	+0.037	4289.387	978761.237	-95.809	108.080	-39.190	-26.919	350.226
565002.1	7394629.2	10500	1095	+0.036	4289.416	978761.266	-95.804	107.993	-39.159	-26.970	349.946
564976.8	7394590.2	10500	1100	+0.035	4289.410	978761.260	-95.834	107.962	-39.147	-27.019	349.844
564952.3	7394548.6	10500	1105	+0.035	4289.410	978761.260	-95.859	107.957	-39.146	-27.048	349.827
564930.1	7394502.7	10500	1110	+0.034	4289.314	978761.164	-95.982	107.966	-39.149	-27.165	349.857
564872.5	7394421.6	10500	1120	+0.033	4288.663	978760.513	-96.682	108.661	-39.401	-27.422	352.109
564819.8	7394335.5	10500	1130	+0.032	4288.747	978760.597	-96.649	108.341	-39.285	-27.593	351.071
564764.0	7394255.2	10500	1140	+0.031	4288.471	978760.321	-96.973	108.453	-39.326	-27.846	351.436
564717.2	7394166.8	10500	1150	+0.030	4288.370	978760.220	-97.127	108.320	-39.277	-28.084	351.006
562132.2	7399344.6	20000	1100	-0.027	4278.998	978750.898	-103.366	111.919	-40.582	-32.029	362.667
562102.0	7399251.0	20000	1110	-0.027	4278.928	978750.828	-103.492	111.895	-40.574	-32.170	362.589
562082.3	7399152.7	20000	1120	-0.026	4278.649	978750.549	-103.829	112.002	-40.612	-32.440	362.936
562045.2	7399051.1	20000	1130	-0.025	4278.365	978750.265	-104.174	111.979	-40.604	-32.799	362.860
562029.4	7398962.8	20000	1140	-0.025	4278.195	978750.095	-104.397	112.019	-40.619	-32.996	362.992
562002.1	7398859.1	20000	1150	-0.024	4278.116	978750.016	-104.538	111.928	-40.586	-33.195	362.697
561972.1	7398763.1	20000	1160	-0.023	4277.962	978749.862	-104.749	112.005	-40.613	-33.358	362.945
561942.1	7398666.7	20000	1170	-0.023	4278.002	978749.902	-104.766	111.836	-40.552	-33.483	362.398
561928.9	7398575.8	20000	1180	-0.022	4277.898	978749.798	-104.925	111.944	-40.592	-33.572	362.749
561900.3	7398478.2	20000	1190	-0.021	4278.024	978749.924	-104.857	111.880	-40.568	-33.545	362.542
561867.7	7398378.7	20000	1200	-0.021	4278.264	978750.164	-104.677	111.702	-40.504	-33.478	361.965
561832.7	7398284.9	20000	1210	-0.020	4278.315	978750.215	-104.682	111.809	-40.542	-33.415	362.311
561812.2	7398178.9	20000	1220	-0.019	4278.791	978750.691	-104.269	111.373	-40.384	-33.281	360.896
561787.6	7398089.5	20000	1230	-0.019	4278.856	978750.756	-104.257	111.495	-40.429	-33.191	361.293
561757.7	7397997.5	20000	1240	-0.018	4279.062	978750.962	-104.106	111.476	-40.422	-33.052	361.230
561729.7	7397896.7	20000	1250	-0.017	4279.198	978751.098	-104.030	111.666	-40.491	-32.855	361.848
561709.4	7397799.9	20000	1260	-0.017	4279.463	978751.363	-103.823	111.601	-40.467	-32.689	361.635
561684.9	7397713.4	20000	1270	-0.016	4279.659	978751.559	-103.679	111.429	-40.405	-32.654	361.080

561664.4	7397611.8	20000	1280	-0.016	4279.839	978751.739	-103.560	111.129	-40.296	-32.727	360.106
561631.9	7397508.7	20000	1290	-0.015	4279.455	978751.355	-104.005	111.422	-40.402	-32.985	361.058
561607.6	7397415.4	20000	1300	-0.014	4279.446	978751.346	-104.070	111.386	-40.389	-33.073	360.940
561582.2	7397319.1	20000	1310	-0.013	4279.362	978751.262	-104.211	111.540	-40.445	-33.116	361.438
561549.4	7397220.8	20000	1320	-0.013	4279.682	978751.582	-103.950	111.216	-40.327	-33.062	360.388
561530.2	7397125.0	20000	1330	-0.012	4279.848	978751.748	-103.841	111.170	-40.311	-32.982	360.240
561497.2	7397028.6	20000	1340	-0.012	4279.818	978751.718	-103.929	111.190	-40.318	-33.057	360.304
561474.8	7396936.3	20000	1350	-0.011	4279.994	978751.894	-103.808	110.882	-40.206	-33.133	359.306
561447.6	7396838.0	20000	1360	-0.010	4279.665	978751.565	-104.196	111.142	-40.301	-33.354	360.149
561417.2	7396746.7	20000	1370	-0.010	4279.515	978751.415	-104.400	111.106	-40.287	-33.582	360.031
561398.2	7396648.5	20000	1380	-0.009	4279.536	978751.436	-104.438	110.831	-40.188	-33.795	359.141
561367.5	7396549.0	20000	1390	-0.008	4279.402	978751.302	-104.632	110.746	-40.157	-34.043	358.865
561334.7	7396453.4	20000	1400	-0.007	4278.868	978750.768	-105.223	111.294	-40.356	-34.285	360.640
/D131											
563772.9	7395322.3	0	2010	+0.000	2822.070	978758.455	-98.205	108.973	-39.514	-28.746	353.119
563772.9	7395322.3	0	2010	+0.005	2822.070	978758.455	-98.205	108.973	-39.514	-28.746	353.119
563772.9	7395322.3	0	2010	+0.070	2822.065	978758.455	-98.205	108.973	-39.514	-28.746	353.119
563772.9	7395322.3	0	2010	+0.005	2821.995	978758.455	-98.205	108.973	-39.514	-28.746	353.119
564102.5	7392596.6	6410	9260	+0.061	2821.256	978757.646	-100.641	107.633	-39.028	-32.036	348.777
564101.3	7393303.4	6410	9330	+0.062	2821.687	978758.077	-99.788	107.963	-39.148	-30.972	349.848
564099.3	7393804.8	6410	9380	+0.063	2822.128	978758.518	-99.047	108.499	-39.342	-29.890	351.584
564094.4	7394310.9	6410	9430	+0.064	2822.354	978758.744	-98.519	108.735	-39.428	-29.212	352.349
564098.1	7394807.5	6410	9480	+0.065	2822.540	978758.930	-98.036	108.705	-39.417	-28.748	352.252
564096.8	7395011.0	6410	9500	+0.065	2822.695	978759.085	-97.760	108.577	-39.371	-28.553	351.838
564100.9	7395202.9	6410	9520	+0.066	2822.641	978759.031	-97.699	108.707	-39.417	-28.410	352.257
564100.1	7395295.9	6410	9530	+0.066	2822.611	978759.001	-97.674	108.750	-39.433	-28.357	352.397
564099.0	7395403.5	6410	9540	+0.067	2822.557	978758.947	-97.663	108.864	-39.474	-28.274	352.766
564097.0	7395497.2	6410	9550	+0.068	2822.503	978758.893	-97.661	108.943	-39.503	-28.222	353.022
564098.3	7395600.7	6410	9560	+0.068	2822.343	978758.733	-97.760	109.173	-39.587	-28.173	353.770
564851.0	7394489.9	6485	9450	+0.058	2824.148	978760.538	-96.616	108.615	-39.384	-27.386	351.959
564842.3	7394803.5	6485	9480	+0.057	2824.487	978760.877	-96.090	108.041	-39.176	-27.225	350.101
564849.3	7395097.8	6485	9510	+0.056	2824.181	978760.571	-96.220	108.500	-39.342	-27.063	351.587
564855.5	7395397.2	6485	9540	+0.056	2823.966	978760.356	-96.256	108.639	-39.393	-27.010	352.039
564850.7	7395701.5	6485	9570	+0.055	2823.615	978760.005	-96.426	108.782	-39.445	-27.089	352.500
564851.6	7395996.4	6485	9600	+0.054	2823.189	978759.579	-96.675	108.866	-39.475	-27.284	352.775
564848.0	7396493.8	6485	9650	+0.054	2821.864	978758.254	-97.704	109.006	-39.526	-28.223	353.229
564857.3	7396997.1	6485	9700	+0.053	2820.723	978757.113	-98.544	109.150	-39.578	-28.972	353.695
564853.9	7397495.7	6485	9750	+0.052	2819.182	978755.572	-99.788	109.677	-39.769	-29.880	355.402
564852.7	7397988.4	6485	9800	+0.051	2818.381	978754.771	-100.295	109.931	-39.862	-30.225	356.226
564848.2	7398499.6	6485	9850	+0.050	2817.790	978754.180	-100.581	110.348	-40.013	-30.245	357.576
565001.1	7393002.9	6500	9300	+0.060	2823.695	978760.085	-97.957	107.383	-38.938	-29.511	347.968
565000.4	7393999.6	6500	9400	+0.059	2824.539	978760.929	-96.517	107.980	-39.154	-27.691	349.904
565501.8	7395801.4	6550	9580	+0.036	2823.716	978760.106	-96.263	108.494	-39.340	-27.110	351.568
565495.6	7396004.6	6550	9600	+0.037	2823.262	978759.652	-96.596	108.621	-39.386	-27.361	351.979
565498.5	7396502.7	6550	9650	+0.047	2822.367	978758.757	-97.194	108.703	-39.416	-27.907	352.245
565502.4	7397502.4	6550	9750	+0.048	2818.873	978755.263	-100.091	109.317	-39.639	-30.413	354.235
565504.1	7398504.3	6550	9850	+0.049	2817.434	978753.824	-100.932	109.905	-39.852	-30.879	356.141
565849.7	7392995.8	6585	9300	+0.022	2825.412	978761.802	-96.242	107.028	-38.809	-28.023	346.817
565845.7	7393201.8	6585	9320	+0.022	2825.652	978762.042	-95.879	107.151	-38.854	-27.581	347.218
565850.1	7393406.2	6585	9340	+0.023	2826.043	978762.433	-95.366	107.177	-38.863	-27.052	347.300
565856.4	7393610.4	6585	9360	+0.024	2826.369	978762.759	-94.918	107.122	-38.843	-26.639	347.122
565849.8	7393797.4	6585	9380	+0.024	2826.354	978762.744	-94.821	107.288	-38.903	-26.436	347.660
565848.0	7393902.4	6585	9390	+0.025	2826.440	978762.830	-94.672	107.309	-38.911	-26.274	347.729
565847.5	7394006.3	6585	9400	+0.025	2826.435	978762.825	-94.615	107.358	-38.928	-26.186	347.886
565844.5	7394100.6	6585	9410	+0.026	2826.176	978762.566	-94.818	107.756	-39.073	-26.135	349.176
565846.9	7394201.8	6585	9420	+0.026	2826.416	978762.806	-94.517	107.611	-39.020	-25.927	348.706
565854.4	7394300.1	6585	9430	+0.027	2826.212	978762.602	-94.663	107.923	-39.133	-25.873	349.717
565844.9	7394398.2	6585	9440	+0.028	2826.233	978762.623	-94.583	107.800	-39.089	-25.872	349.319
565846.2	7394598.1	6585	9460	+0.028	2825.988	978762.378	-94.709	107.772	-39.079	-26.015	349.229
565847.5	7394799.4	6585	9480	+0.029	2825.534	978761.924	-95.042	107.858	-39.110	-26.294	349.507
565853.4	7394997.3	6585	9500	+0.030	2825.060	978761.450	-95.398	107.920	-39.132	-26.610	349.709
565848.3	7395199.2	6585	9520	+0.030	2824.555	978760.945	-95.783	108.134	-39.210	-26.859	350.402
565847.0	7395401.6	6585	9540	+0.034	2824.209	978760.599	-96.008	108.205	-39.236	-27.039	350.632
566298.4	7392000.0	6630	9200	+0.020	2825.135	978761.525	-97.113	106.325	-38.554	-29.341	344.541
566302.0	7392494.1	6630	9250	+0.019	2825.904	978762.294	-96.048	106.405	-38.583	-28.226	344.800
566298.5	7393001.1	6630	9300	+0.019	2826.504	978762.894	-95.145	106.706	-38.692	-27.131	345.776
566309.5	7393194.4	6630	9320	+0.018	2826.678	978763.068	-94.856	106.992	-38.796	-26.660	346.701
566297.4	7393399.0	6630	9340	+0.017	2827.072	978763.462	-94.340	106.989	-38.795	-26.146	346.690
566298.8	7393495.6	6630	9350	+0.017	2827.132	978763.522	-94.222	107.161	-38.857	-25.918	347.249
566301.7	7393602.2	6630	9360	+0.016	2827.226	978763.616	-94.064	107.195	-38.869	-25.739	347.360
566293.7	7393696.6	6630	9370	+0.016	2827.381	978763.771	-93.853	107.100	-38.835	-25.588	347.052
566303.0	7393792.9	6630	9380	+0.015	2827.365	978763.755	-93.811	107.064	-38.822	-25.569	346.934
566304.9	7393987.7	6630	9400	+0.015	2827.175	978763.565	-93.885	107.006	-38.801	-25.680	346.748
566301.0	7394198.1	6630	9420	+0.014	2826.879	978763.269	-94.055	107.133	-38.847	-25.769	347.157
566304.3	7394400.9	6630	9440	+0.013	2826.343	978762.733	-94.470	107.398	-38.943	-26.015	348.017
566305.9	7394599.5	6630	9460	+0.013	2825.873	978762.263	-94.822	107.559	-39.001	-26.264	348.539
566300.2	7394798.2	6630	9480	+0.012	2825.457	978761.847	-95.119	107.680	-39.045	-26.484	348.931
566305.3	7394997.1	6630	9500	+0.011	2825.141	978761.531	-95.316	107.730	-39.063	-26.650	349.092
566300.0	7395495.8	6630	9550	+0.010	2824.540	978760.930	-95.619	107.841	-39.104	-26.882	349.453
566306.7	7396000.1	6630	9600	+0.009	2823.789	978760.179	-96.069	108.092	-39.195	-27.172	350.267
566297.0	7396493.4	6630	9650	+0.008	2822.868	978759.258	-96.696	108.404	-39.308	-27.600	351.276
566300.1	7396987.5	6630	9700	+0.007	2821.787	978758.177	-97.482	108.606	-39.381	-28.257	351.930
566305.7	7397495.1	6630	9750	+0.006	2819.746	978756.136	-99.220	108.995	-39.522	-29.747	353.191

566305.3	7398495.2	6630	9850	+0.004	2816.474	978752.864	-101.895	109.678	-39.770	-31.987	355.405
565929.3	7395183.6	1000	1000	+0.033	2824.583	978760.973	-95.764	108.091	-39.194	-26.867	350.262
565880.4	7395091.6	1000	1010	+0.032	2824.882	978761.272	-95.520	107.936	-39.138	-26.722	349.759
565820.6	7395014.3	1000	1020	+0.033	2825.013	978761.403	-95.435	107.938	-39.139	-26.636	349.766
/D132											
563772.9	7395322.3	0	2010	+0.000	2821.950	978758.455	-98.205	108.973	-39.514	-28.746	353.119
563772.9	7395322.3	0	2010	+0.005	2821.950	978758.455	-98.205	108.973	-39.514	-28.746	353.119
563772.9	7395322.3	0	2010	-0.030	2821.945	978758.455	-98.205	108.973	-39.514	-28.746	353.119
563772.9	7395322.3	0	2010	+0.005	2821.975	978758.455	-98.205	108.973	-39.514	-28.746	353.119
559974.8	7393810.2	6000	9380	-0.016	2808.249	978744.759	-112.813	110.092	-39.920	-42.641	356.747
559997.5	7394507.8	6000	9450	-0.016	2808.124	978744.634	-112.522	110.548	-40.085	-42.059	358.225
560008.5	7395499.2	6000	9550	-0.017	2808.343	978744.853	-111.711	110.591	-40.101	-41.220	358.364
559992.7	7396503.3	6000	9650	-0.017	2808.793	978745.303	-110.661	111.352	-40.377	-39.686	360.830
559997.3	7396996.1	6000	9700	-0.017	2809.238	978745.748	-109.922	111.644	-40.483	-38.761	361.775
559992.6	7397508.7	6000	9750	-0.017	2809.098	978745.608	-109.756	111.977	-40.603	-38.382	362.856
560008.4	7397782.9	6000	9780	-0.018	2808.937	978745.447	-109.754	112.092	-40.645	-38.306	363.229
559996.8	7398501.6	6000	9850	-0.018	2809.457	978745.967	-108.805	112.638	-40.843	-37.010	364.997
560997.5	7393494.9	6100	9350	-0.015	2812.295	978748.805	-108.953	109.527	-39.715	-39.141	354.917
561001.5	7394000.8	6100	9400	-0.015	2811.670	978748.180	-109.276	109.480	-39.698	-39.494	354.763
560999.7	7394495.6	6100	9450	-0.015	2811.565	978748.075	-109.085	109.767	-39.802	-39.121	355.692
560996.0	7395494.8	6100	9550	-0.015	2812.345	978748.855	-107.709	110.397	-40.031	-37.342	357.736
560996.4	7396505.6	6100	9650	-0.014	2812.846	978749.356	-106.604	111.410	-40.398	-35.592	361.017
561001.2	7396998.3	6100	9700	-0.014	2813.596	978750.106	-105.560	111.237	-40.335	-34.658	360.458
560996.0	7397495.2	6100	9750	-0.014	2812.616	978749.126	-106.244	111.418	-40.401	-35.226	361.045
560995.9	7397996.1	6100	9800	-0.014	2811.766	978748.276	-106.795	111.934	-40.588	-35.449	362.715
561000.2	7398497.8	6100	9850	-0.014	2811.681	978748.191	-106.581	112.308	-40.723	-34.996	363.926
561510.3	7397802.3	6150	9780	-0.013	2813.847	978750.357	-104.828	111.584	-40.461	-33.705	361.580
562092.8	7394997.3	6210	9500	-0.010	2816.660	978753.170	-103.688	109.458	-39.690	-33.920	354.691
562091.5	7395609.8	6210	9560	-0.011	2816.944	978753.454	-103.038	109.995	-39.885	-32.928	356.432
562111.4	7395804.9	6210	9580	-0.011	2816.674	978753.184	-103.192	110.714	-40.145	-32.623	358.762
562100.6	7396005.7	6210	9600	-0.011	2817.609	978754.119	-102.137	109.805	-39.816	-32.148	355.818
562103.1	7396207.9	6210	9620	-0.011	2817.684	978754.194	-101.941	109.972	-39.876	-31.845	356.359
562103.5	7396405.3	6210	9640	-0.011	2817.189	978753.699	-102.318	110.725	-40.149	-31.743	358.797
562092.9	7396601.9	6210	9660	-0.011	2817.299	978753.809	-102.091	110.649	-40.122	-31.564	358.553
562096.7	7396796.3	6210	9680	-0.012	2817.163	978753.673	-102.111	110.715	-40.146	-31.542	358.764
562097.9	7397015.1	6210	9700	-0.012	2816.988	978753.498	-102.156	110.798	-40.176	-31.534	359.033
562091.0	7397598.6	6210	9760	-0.012	2817.028	978753.538	-101.767	111.194	-40.319	-30.893	360.316
562591.9	7394998.1	6260	9500	-0.010	2818.255	978754.765	-102.091	109.560	-39.727	-32.258	355.024
562598.5	7395498.3	6260	9550	-0.010	2818.455	978754.965	-101.593	109.775	-39.805	-31.622	355.720
562593.9	7395789.3	6260	9580	-0.009	2818.576	978755.086	-101.298	109.837	-39.827	-31.288	355.921
562596.4	7395992.4	6260	9600	-0.009	2818.451	978754.961	-101.302	110.080	-39.916	-31.137	356.708
562597.1	7396194.0	6260	9620	-0.009	2818.271	978754.781	-101.361	110.392	-40.029	-30.998	357.720
562604.6	7396392.0	6260	9640	-0.009	2818.526	978755.036	-100.988	110.075	-39.914	-30.827	356.692
562602.7	7396587.3	6260	9660	-0.009	2818.206	978754.716	-101.192	110.411	-40.035	-30.816	357.780
562595.4	7396797.7	6260	9680	-0.009	2818.196	978754.706	-101.076	110.305	-39.997	-30.768	357.436
562604.7	7396992.2	6260	9700	-0.008	2817.947	978754.457	-101.209	110.441	-40.046	-30.815	357.876
562594.5	7397189.0	6260	9720	-0.008	2817.642	978754.152	-101.397	110.754	-40.160	-30.802	358.893
562607.5	7397399.1	6260	9740	-0.008	2817.312	978753.822	-101.601	110.864	-40.200	-30.937	359.248
562591.8	7397999.3	6260	9800	-0.008	2815.667	978752.177	-102.888	111.319	-40.365	-31.934	360.722
563097.2	7394006.4	6310	9400	-0.005	2819.325	978755.835	-101.612	108.785	-39.446	-32.274	352.510
563106.0	7395002.8	6310	9500	-0.005	2820.075	978756.585	-100.267	109.227	-39.606	-30.646	353.945
563106.7	7395306.8	6310	9530	-0.006	2819.774	978756.284	-100.387	109.912	-39.854	-30.330	356.162
563094.4	7395500.6	6310	9550	-0.006	2820.094	978756.604	-99.951	109.569	-39.730	-30.112	355.051
563096.6	7395702.0	6310	9570	-0.006	2819.784	978756.294	-100.141	109.841	-39.829	-30.129	355.934
563096.7	7395903.5	6310	9590	-0.006	2819.724	978756.234	-100.080	109.858	-39.835	-30.058	355.987
563103.0	7396107.4	6310	9610	-0.006	2819.399	978755.909	-100.284	110.333	-40.007	-29.958	357.529
563098.4	7396305.2	6310	9630	-0.006	2819.669	978756.179	-99.896	109.979	-39.879	-29.796	356.379
563100.1	7396493.2	6310	9650	-0.007	2819.663	978756.173	-99.789	110.019	-39.893	-29.664	356.510
563094.2	7396695.2	6310	9670	-0.007	2819.383	978755.893	-99.949	110.186	-39.954	-29.717	357.051
563106.9	7396997.6	6310	9700	-0.007	2818.543	978755.053	-100.608	110.347	-40.012	-30.274	357.573
563095.2	7397298.5	6310	9730	-0.007	2817.688	978754.198	-101.284	110.550	-40.086	-30.820	358.230
563097.3	7398007.3	6310	9800	-0.007	2816.273	978752.783	-102.276	110.897	-40.212	-31.590	359.356
563104.9	7398500.3	6310	9850	-0.008	2815.742	978752.252	-102.513	111.368	-40.383	-31.527	360.882
563600.2	7394997.8	6360	9500	-0.005	2821.115	978757.625	-99.229	109.381	-39.662	-29.510	354.443
563597.4	7395294.6	6360	9530	-0.004	2821.181	978757.691	-98.986	109.391	-39.666	-29.260	354.476
563601.9	7395497.5	6360	9550	-0.004	2821.196	978757.706	-98.850	109.355	-39.653	-29.147	354.360
563592.6	7395709.9	6360	9570	-0.004	2821.091	978757.601	-98.828	109.442	-39.684	-29.070	354.640
563595.9	7395897.1	6360	9590	-0.004	2821.041	978757.551	-98.766	109.460	-39.691	-28.997	354.699
563597.4	7396096.2	6360	9610	-0.004	2820.866	978757.376	-98.822	109.697	-39.777	-28.902	355.468
563598.8	7396299.6	6360	9630	-0.004	2821.261	978757.771	-98.306	109.451	-39.687	-28.542	354.669
563601.2	7396491.7	6360	9650	-0.003	2821.267	978757.777	-98.185	109.528	-39.715	-28.372	354.919
563598.5	7396994.2	6360	9700	-0.003	2819.497	978756.007	-99.655	109.927	-39.860	-29.588	356.213
563592.5	7397293.4	6360	9730	-0.003	2818.422	978754.932	-100.552	110.126	-39.932	-30.358	356.858
563595.2	7397794.5	6360	9780	-0.003	2817.412	978753.922	-101.263	110.492	-40.065	-30.835	358.043
564097.0	7395497.2	6410	9550	-0.001	2822.399	978758.909	-97.645	108.946	-39.504	-28.204	353.032
564098.3	7395600.7	6410	9560	-0.001	2822.224	978758.734	-97.759	109.173	-39.587	-28.172	353.770
564100.6	7395798.3	6410	9580	-0.001	2822.294	978758.804	-97.571	109.118	-39.567	-28.019	353.590
564095.4	7396001.4	6410	9600	-0.002	2822.323	978758.833	-97.420	109.053	-39.543	-27.910	353.380
564095.7	7396199.2	6410	9620	-0.002	2822.118	978758.628	-97.507	109.227	-39.606	-27.887	353.943
564104.9	7396701.4	6410	9670	-0.002	2820.868	978757.378	-98.458	109.565	-39.729	-28.621	355.038
564100.1	7397201.4	6410	9720	-0.002	2820.158	978756.668	-98.869	109.812	-39.818	-28.876	355.839
564098.8	7397700.1	6410	9770	-0.002	2818.383	978754.893	-100.347	110.130	-39.934	-30.150	356.871
564094.1	7398198.5	6410	9820	-0.003	2817.532	978754.042	-100.900	110.400	-40.031	-30.532	357.744

565597.2	7393892.6	6560	9390	-0.023	2825.672	978762.182	-95.327	107.725	-39.061	-26.664	349.075
565595.3	7394001.2	6560	9400	-0.023	2825.987	978762.497	-94.947	107.512	-38.984	-26.419	348.386
565599.9	7394098.8	6560	9410	-0.023	2826.107	978762.617	-94.769	107.494	-38.978	-26.252	348.328
565600.1	7394196.9	6560	9420	-0.023	2826.152	978762.662	-94.665	107.467	-38.968	-26.166	348.241
565602.1	7394297.2	6560	9430	-0.022	2826.173	978762.683	-94.584	107.468	-38.969	-26.084	348.245
565999.9	7393699.5	6600	9370	-0.023	2826.602	978763.112	-94.511	107.272	-38.897	-26.136	347.609
566000.5	7393805.9	6600	9380	-0.023	2826.677	978763.187	-94.372	107.263	-38.894	-26.003	347.580
566002.0	7393903.5	6600	9390	-0.024	2826.571	978763.081	-94.420	107.423	-38.952	-25.949	348.097
565996.1	7393998.3	6600	9400	-0.024	2826.416	978762.926	-94.519	107.643	-39.032	-25.907	348.811
566001.3	7394099.9	6600	9410	-0.024	2826.571	978763.081	-94.303	107.481	-38.973	-25.795	348.285
565993.4	7394196.9	6600	9420	-0.024	2826.571	978763.081	-94.245	107.479	-38.972	-25.738	348.278
566145.0	7393597.2	6615	9360	-0.025	2826.970	978763.480	-94.204	107.113	-38.840	-25.930	347.094
566153.3	7393696.2	6615	9370	-0.025	2827.040	978763.550	-94.075	107.170	-38.860	-25.765	347.277
566151.1	7393796.6	6615	9380	-0.025	2827.075	978763.585	-93.980	107.177	-38.863	-25.666	347.300
566153.7	7393902.7	6615	9390	-0.024	2826.971	978763.481	-94.020	107.276	-38.899	-25.643	347.620
566154.0	7393999.9	6615	9400	-0.024	2826.806	978763.316	-94.127	107.370	-38.933	-25.690	347.926
566143.7	7394101.1	6615	9410	-0.024	2826.656	978763.166	-94.217	107.471	-38.970	-25.715	348.255
566298.8	7393495.7	6630	9350	-0.025	2827.065	978763.575	-94.169	107.152	-38.854	-25.871	347.219
566587.1	7395596.2	6660	9560	-0.029	2824.636	978761.146	-95.343	107.923	-39.133	-26.553	349.717
566595.1	7395848.4	6660	9585	-0.029	2824.446	978760.956	-95.382	107.762	-39.075	-26.695	349.197
566591.3	7396051.3	6660	9605	-0.029	2823.941	978760.451	-95.766	108.056	-39.181	-26.892	350.148
566592.7	7396243.8	6660	9625	-0.029	2823.636	978760.146	-95.956	108.193	-39.231	-26.994	350.594
566999.7	7392997.3	6700	9300	-0.026	2827.124	978763.634	-94.406	106.458	-38.602	-26.550	344.970
566994.5	7397007.7	6700	9700	-0.027	2821.548	978758.058	-97.587	108.386	-39.301	-28.502	351.219
567494.7	7393998.3	6750	9400	-0.026	2828.184	978764.694	-92.746	106.622	-38.662	-24.786	345.503
567499.7	7394788.9	6750	9480	-0.026	2827.309	978763.819	-93.149	106.930	-38.773	-24.993	346.500
567497.5	7395402.0	6750	9540	-0.027	2826.548	978763.058	-93.544	107.263	-38.894	-25.175	347.578
567502.5	7395802.1	6750	9580	-0.027	2825.878	978762.388	-93.975	107.452	-38.962	-25.486	348.191
567501.3	7396492.9	6750	9650	-0.027	2823.618	978760.128	-95.823	107.838	-39.102	-27.088	349.442
567504.9	7397497.9	6750	9750	-0.028	2820.112	978756.622	-98.729	108.640	-39.394	-29.482	352.043
567504.7	7398005.8	6750	9800	-0.028	2818.852	978755.362	-99.686	108.338	-39.284	-30.632	351.063
561666.9	7397629.3	2000	1280	-0.013	2815.022	978751.532	-103.756	111.408	-40.397	-32.745	361.012
561709.0	7397794.2	2000	1260	-0.013	2814.907	978751.417	-103.773	111.538	-40.444	-32.679	361.433