

FILE COPY

**Report of Survey
Pasco County, Florida**

Prepared for:

Earthdata International
7320 Executive Way
Frederick, MD 21704

Prepared by:

TerraSurv^{INC}
4227 Steubenville Pike
Pittsburgh, PA 15205

July 2004

REPORT OF SURVEY PASCO COUNTY, FLORIDA

PREPARED BY:

Kevin J. Chappell
Florida PSM Lic. No. LS5818
4227 Steubenville Pike
Pittsburgh, PA 15205

412.341.5621

July 20, 2004

PURPOSE:


The purpose of this survey is to establish ground control for a photogrammetric mapping and LIDAR project.

REPORT CONTENTS:

This report contains a detailed narrative of survey methodologies used and the results of the final computations and adjustments. A map of the survey network entitled "PLAN OF GPS SURVEY, PASCO COUNTY, FLORIDA FOR PHOTOGRAMMETRIC MAPPING CONTROL" dated July 20, 2004 is included as an attachment. The Table of Contents contains more detailed content information.

THIS REPORT IS NOT VALID WITHOUT THE RAISED SEAL AND SIGNATURE OF THE FLORIDA PSM IN RESPONSIBLE CHARGE OF THIS SURVEY.

I hereby certify that this report is based upon an actual field survey performed under my direct supervision and that the report contents are true and factual to the best of my professional knowledge and belief.


Kevin J. Chappell
Florida PSM Lic. No. LS5818

REPORT OF SURVEY PASCO COUNTY, FLORIDA

INTRODUCTION

Earthdata International was contracted to provide mapping services in Pasco County, Florida. Conventional aerial photography along with LIDAR observations were made. Earthdata subcontracted the ground survey tasks to Terrasurv. Terrasurv utilized the Global Positioning System (GPS) to establish the control network.

CONTROL

The control for this project consisted of several stations of the National Spatial Reference System (NSRS).

The following list summarizes the NSRS control used for this project:

Station Name	PID	H Order	V Order	Comments
PASCO RESET	AL7030	B	2	HARN/BM
ZEPHYRPORT	AL7876	A	2	HARN/BM
BROOKSVILLE CORS ARP	DF7982	A	GPS	CORS
ZEPHYRHILLS CORS ARP	DF7990	A	-	CORS
CR 63 FLDNR	AL7347	-	2	BM
PAS 3 FLDNR	AL7466	-	2	BM

Note that BROOKSVILLE CORS ARP was used in the Citrus County project, observed by GPS earlier this year. The GPS derived orthometric height from the previous project was used as a check in the current project.

The horizontal datum was the North American Datum of 1983, 1999 adjustment (NAD 1983 1999). The vertical datum was the North American Vertical Datum of 1988 (NAVD 1988).

NEW STATIONS

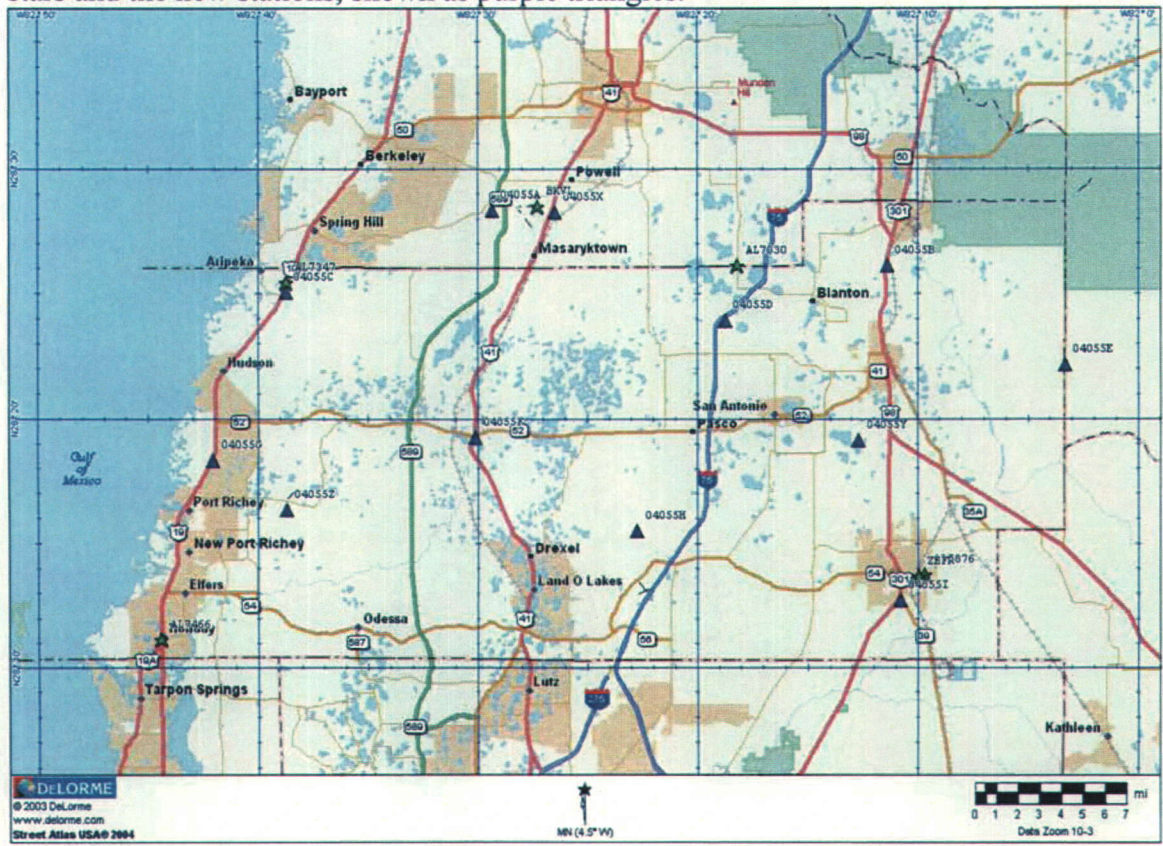
There were a total of 10 new control stations established, as well as 2 temporary base points. In addition, the base station established by the flight crew at Hernando County Airport (KBKV) was occupied (04055X). Due to the stringent vertical accuracy requirements (0.05 m), all newly established control points were occupied two times, as were the existing NSRS monuments. The following is a listing of the newly established control:

Station Name	GPSID	USGS Quad	Description
BASE1	04055Z	PORT RICHEY	Temporary point
BASE2	04055Y	DADE CITY	Temporary point
EDA BASE	04055X	MASARYKTOWN	nail set by Earthdata Aviation at Hernando County Airport
PASCO-01	04055A	MASARYKTOWN	ID=SW corner (end) of concrete sidewalk on west side of entrance to bank & pharmacy on south side of Spring Hill Drive
PASCO-02	04055B	LACOCHEE	ID=southerly tip of chevron arrow between Owensboro Road and US 98. Chevron touches south tip of grass traffic island.
PASCO-03	04055C	ARIPEKA	ID=east tip of southerly (of 5) turn arrows

Station Name	GPSID	USGS Quad	Description
			in turn lane on east side of US 19
PASCO-04	04055D	SPRING LAKE	ID=SE corner of concrete pad around storm drain on east side of Lake Iola Road
PASCO-05	04055E	BRANCBOROUGH	ID=SE corner of asphalt shoulder at point where shoulder widens, east side of SR 471
PASCO-06	04055F	FIVAY JUNCTION	ID=SW corner of utility vault cover on west side of US 41, north side of Michigan Lane
PASCO-07	04055G	PORT RICHEY	ID=SW corner of concrete sidewalk on south side of church, north side of Jasmine Boulevard
PASCO-08	04055H	EHREN	ID=NE corner of concrete driveway, west edge of Lovers Lane, second house north of Quail Hollow Boulevard on west side of street
PASCO-09	04055I	ZEPHYRHILLS	ID=southerly tip of white chevron in merge area from SR 39 to US 301, chevron is second white chevron south to north
PASCO-10	AL7466	ELFERS	ID=center of SW corner of concrete drop inlet rim on east side of US 19, west of parking lot

Because this survey was done post-flight, all of the stations were chosen as photo identities. No permanent marks were set.

The map below in figure 1 shows the distribution of the control stations, shown as green stars and the new stations, shown as purple triangles.



GPS OBSERVATIONS

The network was observed in a radial configuration. Base receivers (2) were established on random points, and run throughout the observations in the area. The observations were made on day 119 of 2004, using four Trimble dual frequency receivers. The redundant occupation on each point was done at a different time of day from the first, separated by at least two hours. The table below summarizes the occupations:

GPSID	UTC start	duration	Filename	HI
04055A	04/28/2004 18:41:00	14	3795119a.dat	2.250
04055A	04/28/2004 14:53:45	16	37951194.dat	2.250
04055B	04/28/2004 21:49:45	20	3665119D.dat	2.000
04055B	04/28/2004 12:02:00	19	36651190.dat	2.000
04055C	04/28/2004 13:57:30	19	37951192.dat	2.250
04055C	04/28/2004 17:47:00	15	37951198.dat	2.250
04055D	04/28/2004 19:14:00	18	36651199.dat	2.000
04055D	04/28/2004 21:09:45	21	3665119C.dat	2.000
04055E	04/28/2004 14:29:30	20	36651193.dat	2.000
04055E	04/28/2004 16:41:30	19	36651196.dat	2.000
04055F	04/28/2004 19:56:45	17	3795119c.dat	2.250
04055F	04/28/2004 15:31:45	16	37951195.dat	2.250
04055G	04/28/2004 13:26:45	16	37951191.dat	2.250
04055G	04/28/2004 17:15:00	14	37951197.dat	2.250
04055H	04/28/2004 17:51:15	19	36651197.dat	2.000
04055H	04/28/2004 19:57:15	20	3665119A.dat	2.000
04055I	04/28/2004 13:44:15	16	36651192.dat	2.000
04055I	04/28/2004 15:51:30	19	36651195.dat	2.000
04055X	04/28/2004 19:23:30	16	3795119b.dat	2.250
04055Y	04/28/2004 11:35:00	652	99811190.DAT	0.000
04055Z	04/28/2004 12:07:30	514	97571190.dat	0.000
AL7030	04/28/2004 20:43:30	20	3665119B.dat	2.750
AL7030	04/28/2004 18:46:00	19	36651198.dat	2.750
AL7347	04/28/2004 14:20:30	15	37951193.dat	2.250
AL7347	04/28/2004 18:05:15	16	37951199.dat	2.250
AL7466	04/28/2004 12:46:45	17	37951190.dat	2.250
AL7466	04/28/2004 16:38:15	15	37951196.dat	2.250
AL7876	04/28/2004 15:22:00	20	36651194.dat	2.000
AL7876	04/28/2004 13:11:45	20	36651191.dat	2.000
BKVL	04/28/2004 12:07:30	514	BKVL119.040	0.000
ZEFR	04/28/2004 11:35:00	652	ZEFR119.040	0.000

The following table lists the differences in occupation for each of the repeat occupations:

Station	GPSID	Occupation 1	Occupation 2	Delta T (minutes)
PASCO-1	04055A	04/28/2004 14:53:45	04/28/2004 18:41:00	228
PASCO-2	04055B	04/28/2004 12:02:00	04/28/2004 21:49:45	588
PASCO-3	04055C	04/28/2004 13:57:30	04/28/2004 17:47:00	230
PASCO-4	04055D	04/28/2004 19:14:00	04/28/2004 21:09:45	116

Station	GPSID	Occupation 1	Occupation 2	Delta T (minutes)
PASCO-5	04055E	04/28/2004 14:29:30	04/28/2004 16:41:30	132
PASCO-6	04055F	04/28/2004 15:31:45	04/28/2004 19:56:45	265
PASCO-7	04055G	04/28/2004 13:26:45	04/28/2004 17:15:00	228
PASCO-8	04055H	04/28/2004 17:51:15	04/28/2004 19:57:15	126
PASCO-9	04055I	04/28/2004 13:44:15	04/28/2004 15:51:30	127
PASCO RESET	AL7030	04/28/2004 18:46:00	04/28/2004 20:43:30	118
CR 63 FLDNR	AL7347	04/28/2004 14:20:30	04/28/2004 18:05:15	225
PAS 3 FLDNR (Also PASCO-10)	AL7466	04/28/2004 12:46:45	04/28/2004 16:38:15	232
ZEPHYRPORT	AL7876	04/28/2004 13:11:45	04/28/2004 15:22:00	130

DATA PROCESSING

The GPS data collected was downloaded to a PC and processed using the *WAVE* (Weighted Ambiguity Vector Estimator) processor in Trimble Geomatics Office (TGO) version 1.6. The single baseline method was used. In general, all lines radiating from the base receivers to the nearby stations were processed, except where the CORS was significantly closer than the base. In addition, the baselines between the two bases and the two CORS were processed and included to strengthen the network. The precise ephemeris was used. All solutions utilized the integer bias fixed solution with the exception of the long duration observations between the base stations and the CORS, which utilized the float solutions. The table below summarizes the processing results:

From	To	UTC Start	Dur.	Length	Ratio	Var.	RMS
04055Y	04055B	04/28/2004 12:02:00	19	13130	36.35	0.8	0.011
04055Y	04055B	04/28/2004 21:49:45	20	13130	12.73	0.9	0.009
04055Y	04055D	04/28/2004 19:14:00	18	13217	20.34	0.9	0.01
04055Y	04055D	04/28/2004 21:09:45	21	13217	8.38	1.6	0.014
04055Y	04055E	04/28/2004 16:41:30	19	16330	9.8	1.6	0.014
04055Y	04055E	04/28/2004 14:29:30	20	16330	20.28	1	0.011
04055Y	04055H	04/28/2004 19:57:15	20	17703	15.4	1	0.011
04055Y	04055H	04/28/2004 17:51:15	19	17703	14.01	0.8	0.01
04055Y	AL7030	04/28/2004 18:46:00	19	15222	13.76	1.4	0.013
04055Y	AL7030	04/28/2004 20:43:30	20	15222	10.75	2.4	0.017
04055Z	04055C	04/28/2004 17:47:00	15	16067	24.41	1.2	0.012
04055Z	04055C	04/28/2004 13:57:30	19	16067	19.7	1.2	0.015
04055Z	04055F	04/28/2004 19:56:45	17	14994	21.3	1.8	0.017
04055Z	04055F	04/28/2004 15:31:45	16	14994	9.18	1.9	0.018
04055Z	04055G	04/28/2004 13:26:45	16	6634	66.26	1.8	0.019
04055Z	04055G	04/28/2004 17:15:00	14	6634	14.86	1.3	0.013
04055Z	04055Y	04/28/2004 12:07:30	514	42755	0	1.3	0.014
04055Z	AL7347	04/28/2004 18:05:15	16	16151	9.3	1.5	0.015
04055Z	AL7347	04/28/2004 14:20:30	15	16151	11.42	1.5	0.014
04055Z	AL7466	04/28/2004 12:47:00	16	13824	30.46	0.7	0.01
04055Z	AL7466	04/28/2004 16:38:15	15	13824	10.24	1.2	0.015
04055Z	BKVL	04/28/2004 12:07:30	514	28717	0	1.3	0.014

From	To	UTC Start	Dur.	Length	Ratio	Var.	RMS
AL7876	ZEFR	04/28/2004 15:22:00	20	419	23.8	2	0.005
AL7876	ZEFR	04/28/2004 13:11:45	20	419	32.18	0.8	0.003
BKVL	04055A	04/28/2004 14:53:45	16	3508	20.52	3.2	0.005
BKVL	04055A	04/28/2004 18:41:00	14	3508	14.07	4.9	0.008
BKVL	04055X	04/28/2004 19:23:30	16	1215	14.41	6	0.008
BKVL	04055Y	04/28/2004 12:07:30	514	28967	0	1.3	0.012
ZEFR	04055I	04/28/2004 15:51:30	19	1921	42.32	2.7	0.006
ZEFR	04055I	04/28/2004 13:44:15	16	1921	23.69	8.3	0.01
ZEFR	04055Y	04/28/2004 11:35:00	652	11588	0	1.3	0.013
ZEFR	04055Z	04/28/2004 12:07:30	514	47426	0	1.4	0.015
ZEFR	BKVL	04/28/2004 12:07:30	514	39338	0	1.3	0.013

In general, there are several indicators of baseline quality. For integer bias fixed solutions, the ratio should be larger than 3.0, the rms should be below 0.02, and the variance should be near unity. The same criteria applies for the float solutions, except the ratio is not applicable. All of the baselines had acceptable statistics.

There were numerous repeat baselines, which are baselines which have been measured in more than one independent session. The Earth Centered Earth Fixed vector differences were rotated into a local horizon system for analysis (sorted by increasing difference in the vertical component, all values in meters):

From	To	Delta N	Delta E	Delta U	Length
04055G	04055Z	0.019	-0.005	-0.024	6635
04055Y	AL7030	0.026	0.003	-0.022	15223
04055I	ZEFR	-0.002	-0.001	-0.018	1921
04055C	04055Z	0.004	0.006	-0.016	16068
04055A	BKVL	-0.012	0.003	-0.008	3509
AL7876	ZEFR	-0.002	0.003	-0.006	419
04055H	04055Y	0.006	-0.008	-0.002	17704
04055Z	AL7466	-0.007	-0.003	0.001	13825
04055F	04055Z	-0.014	-0.004	0.007	14995
04055E	04055Y	-0.006	-0.006	0.017	16331
04055Z	AL7347	-0.002	0.005	0.018	16152
04055D	04055Y	-0.014	-0.003	0.024	13217
04055B	04055Y	-0.001	-0.01	0.043	13130

As can be seen, all of the repeat baselines agreed to better than 0.05 m in the vertical component, and all but one agree to better than ± 0.025 m

LEAST SQUARES ADJUSTMENTS

The data was adjusted using GEOLAB, a least squares adjustment program from Microsearch Corp. The processed baselines were parsed to form an input file. No scaling of the a priori baseline statistics was done. Station errors (HI and centering) of 0.005 m

were also included. Geoid separations for each station were interpolated using the GEOID03 model.

The first adjustment was a minimally constrained adjustment which held CORS **BKVL** fixed in all three dimensions (latitude and longitude and orthometric height). The estimated variance factor was 1.05. The graph below in figure 2 shows the horizontal and vertical residuals versus baseline length for this adjustment.

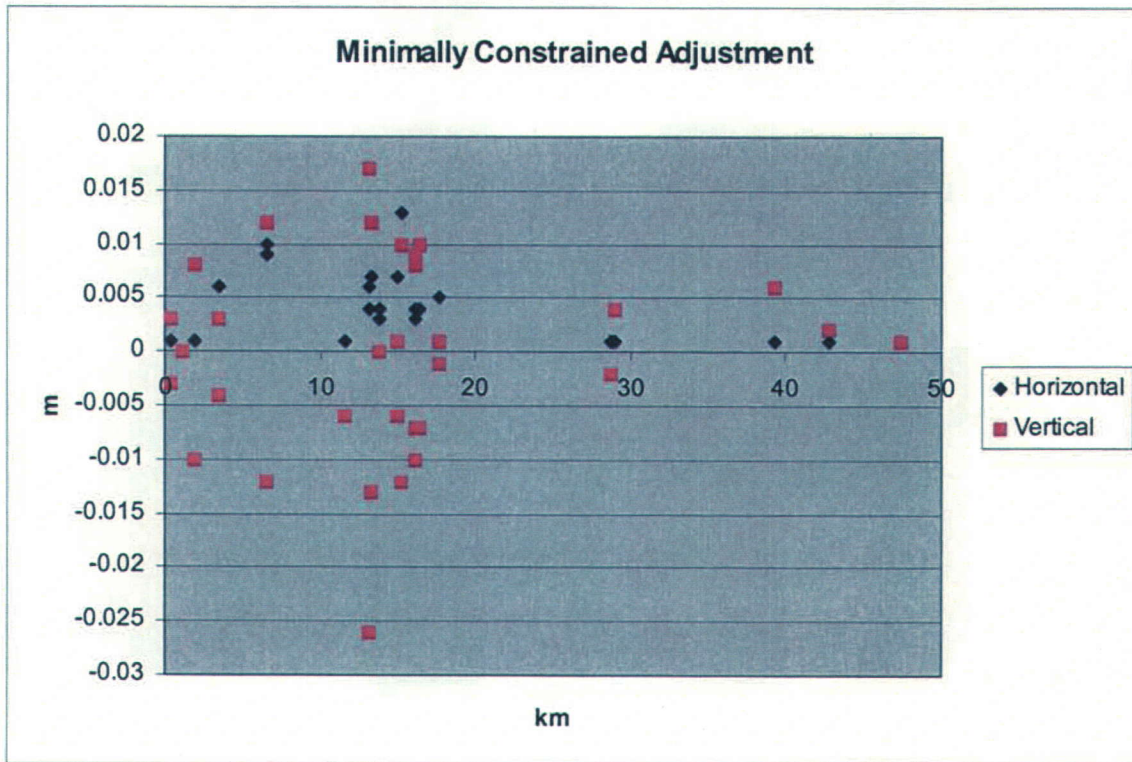


Figure 2 - residuals

As can be seen, the vertical residuals are within the range of -0.026 m to $+0.017$ m. The horizontal residuals are in the range of 0.000 to 0.013 m. The misclosures at the other control stations were as follows:

PID	Azimuth	Distance	Δ Ortho H	Δ Ellip H
AL7030	39°	0.015 m	-0.017 m	-0.079 m
AL7347			+0.023 m	
AL7466			-0.008 m	
AL7876	95°	0.003 m	-0.010 m	
BKVL	---	-----	-----	+0.027 m
ZEFR	308°	0.002 m		+0.028 m

All of the control checked well within expected tolerances. The output from this adjustment is included in appendix A.

The final adjustment fixed the two CORS **BKVL** and **ZEFR** horizontally (latitude and longitude). **PASCO RESET** and **ZEPHYRPORT** were fixed in all three dimensions (latitude, longitude, and orthometric height). The two benchmarks **PAS 3 FLDNR** and **CR 63 FLDNR** were constrained vertically (orthometric height). The estimated variance factor for this adjustment was 1.29. The graph below in figure 3 shows the horizontal and vertical residuals for this adjustment.

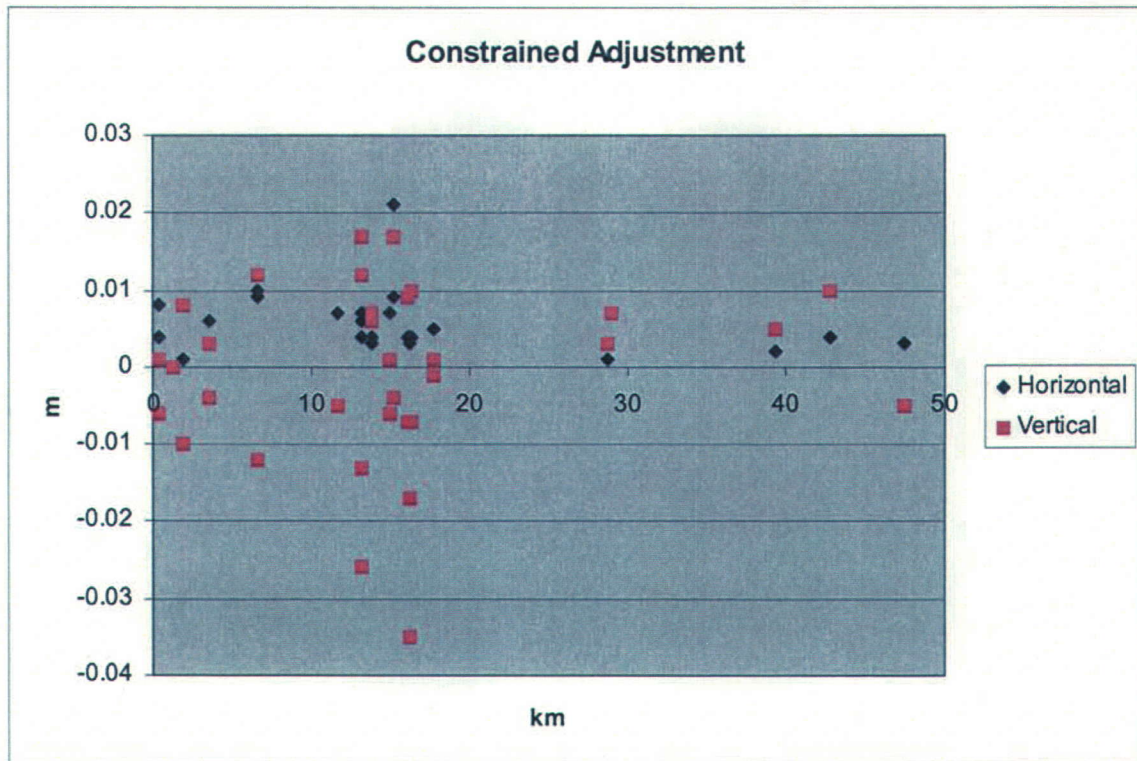


Figure 3 - residuals

The vertical residuals from this adjustment ranged from -0.035 m to $+0.017$ m. The output from this adjustment is included in appendix B. This adjustment provided the final adjusted coordinates for the network.

The table below shows the 2-D and 1-D Station Confidence Regions (95.000 percent, in meters) for the stations in the network:

STATION	MAJOR SEMI-AXIS	AZ	MINOR SEMI-AXIS	VERTICAL
04055A	0.014	175	0.014	0.018
04055B	0.017	150	0.017	0.017
04055C	0.019	42	0.019	0.017
04055D	0.017	3	0.017	0.016
04055E	0.017	9	0.017	0.017
04055F	0.019	129	0.019	0.020
04055G	0.019	46	0.019	0.018
04055H	0.017	163	0.017	0.017
04055I	0.014	23	0.014	0.015
04055X	0.020	174	0.020	0.021
04055Y	0.009	167	0.009	0.010
04055Z	0.012	93	0.012	0.008
AL7347	0.019	3	0.019	0.000

STATION	MAJOR SEMI-AXIS	AZ	MINOR SEMI-AXIS	VERTICAL
AL7466	0.019	111	0.019	0.000
BKVL	0.000	0	0.000	0.012
ZEFR	0.000	0	0.000	0.009

SUMMARY

A geodetic control network was established in Pasco County, Florida for the purpose of controlling aerial photography and LIDAR. The accuracy of the adjusted coordinates is ± 0.03 m. The network configuration is shown in figure 4.

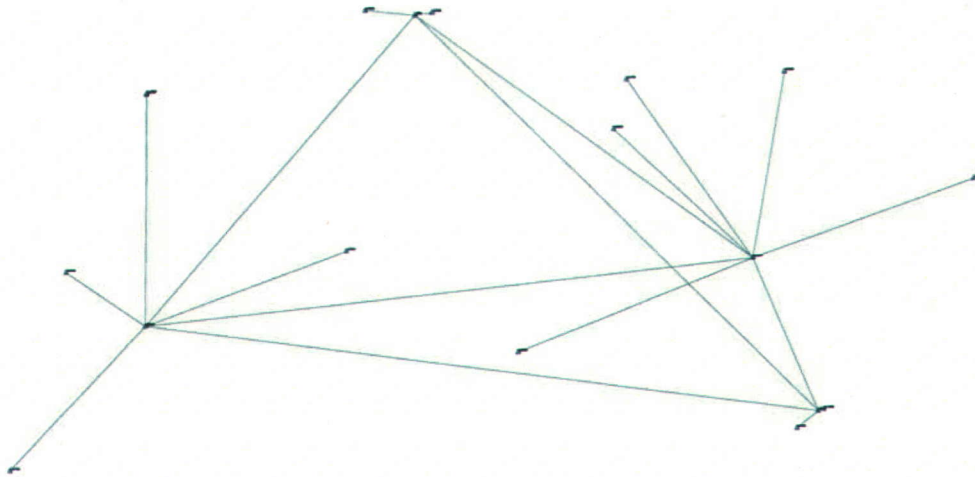


Figure 4 - network diagram

ADJUSTED COORDINATES – NAD 1983 1999/NAVD 1988 meters

Station Name	GPSID	USGS Quad	Latitude	Longitude	Ellip H	Ortho H
BASE1	04055Z	PORT RICHEY	28°16'38.28497" N	82°38'40.77359" W	-16.879	8.726
BASE2	04055Y	DADE CITY	28°19'24.33217" N	82°12'42.80373" W	13.175	39.526
BKVL	BKVL	MASARYKTOWN	28°28'25.66910" N	82°27'13.19472" W	-4.997	21.378
CR 63 FLDNR	AL7347	ARIPEKA	28°25'22.95851" N	82°38'41.47605" W	-20.738	5.325
EDA BASE	04055X	MASARYKTOWN	28°28'31.97574" N	82°26'29.09152" W	-5.179	21.220
PASCO RESET	AL7030	SPRING LAKE	28°26'05.49263" N	82°18'09.68487" W	41.928	68.413
PASCO-01	04055A	MASARYKTOWN	28°28'35.17558" N	82°29'21.74199" W	-7.099	19.234
PASCO-02	04055B	LACOOCHEE	28°26'25.10299" N	82°11'23.86558" W	-0.169	26.463
PASCO-03	04055C	ARIPEKA	28°25'20.21663" N	82°38'43.07879" W	-20.178	5.881
PASCO-04	04055D	SPRING LAKE	28°24'12.81490" N	82°18'42.29670" W	37.701	64.099
PASCO-05	04055E	BRANCHBOROUGH	28°22'25.46617" N	82°03'19.20529" W	1.983	28.670
PASCO-06	04055F	FIVAY JUNCTION	28°19'31.89760" N	82°30'06.58118" W	-2.977	22.920
PASCO-07	04055G	PORT RICHEY	28°18'36.94857" N	82°42'04.04717" W	-23.096	2.556
PASCO-08	04055H	EHREN	28°15'47.28445" N	82°22'44.46864" W	-3.895	21.954
PASCO-09	04055I	ZEPHYRHILLS	28°12'59.96951" N	82°10'47.36893" W	-1.787	24.356
PASCO-10	AL7466	ELFERS	28°11'07.28369" N	82°44'23.46767" W	-20.585	4.627
ZEFR	ZEFR	ZEPHYRHILLS	28°13'39.32227" N	82°09'52.67214" W	0.065	26.276
ZEPHYRPORT	AL7876	ZEPHYRHILLS	28°13'43.28435" N	82°09'37.96195" W	-1.579	24.645

Note: Ellipsoidal heights are based on NAVD 1988 GPS derived orthometric heights plus GEOID03.

Florida West State Plane Coordinates – meters

Station Name	SPC N m	SPC E m	Ortho H	SPC conv	SPC SF	EF	SPC CF
BASE1	437106.743	136756.150	8.726	0°54'42.47"	1.00412631	1.00000266	1.00412898
BASE2	442067.799	179221.867	39.526	0°40'18.74"	1.00405297	0.99999793	1.00405088
BKVL	458797.485	155575.702	21.378	0°48'21.28"	1.00381818	1.00000079	1.00381897
CR 63 FLDNR	453258.408	136823.332	5.325	0°54'42.86"	1.00389668	1.00000327	1.00389996
EDA BASE	458987.161	156776.073	21.220	0°47'56.83"	1.00381548	1.00000082	1.00381630
PASCO RESET	454435.818	170348.869	68.413	0°43'19.96"	1.00387834	0.99999340	1.00387171
PASCO-01	459103.853	152080.253	19.234	0°49'32.55"	1.00381411	1.00000112	1.00381523
PASCO-02	455016.886	181392.494	26.463	0°39'34.97"	1.00386990	1.00000003	1.00386992
PASCO-03	453174.235	136779.261	5.881	0°54'43.75"	1.00389787	1.00000318	1.00390106
PASCO-04	450969.468	169452.490	64.099	0°43'38.04"	1.00392702	0.99999406	1.00392106
PASCO-05	447626.652	194576.379	28.670	0°35'06.28"	1.00397367	0.99999969	1.00397336
PASCO-06	442384.708	150790.927	22.920	0°49'57.41"	1.00404964	1.00000047	1.00405011
PASCO-07	440790.502	131237.744	2.556	0°56'35.17"	1.00407383	1.00000364	1.00407748
PASCO-08	435426.503	162811.967	21.954	0°45'52.30"	1.00414896	1.00000061	1.00414957
PASCO-09	430230.992	182348.632	24.356	0°39'14.74"	1.00422368	1.00000028	1.00422396
PASCO-10	426970.712	127354.815	4.627	0°57'52.46"	1.00427436	1.00000324	1.00427761
ZEFR	431440.246	183841.661	26.276	0°38'44.41"	1.00420605	0.99999999	1.00420604
ZEPHYRPORT	431561.670	184242.875	24.645	0°38'36.26"	1.00420427	1.00000025	1.00420452



Station Name: PASCO-01 GPSID: 04055A USGS Quad: MASARYKTOWN

NAD 1983 1999/NAVD 1988/GEOID 2003 - meters

Latitude: 28°28'35.17558" N Longitude: 82°29'21.74199" W

Ellipsoidal H: -7.099 Orthometric H: 19.234

Florida West Zone State Plane Coordinates - meters

Northing: 459103.853 Easting: 152080.253

UTM Zone 17 meters

Northing: 3150885.3 Easting: 354201.221

Description: ID=SW corner (end) of concrete sidewalk on west side of entrance to bank & pharmacy on south side of Spring Hill Drive



Station Name: PASCO-02 GPSID: 04055B USGS Quad: LACOCHEE

NAD 1983 1999/NAVD 1988/GEOID 2003 - meters

Latitude: 28°26'25.10299" N Longitude: 82°11'23.86558" W

Ellipsoidal H: -0.169 Orthometric H: 26.463

Florida West Zone State Plane Coordinates - meters

Northing: 455016.886 Easting: 181392.494

UTM Zone 17 meters

Northing: 3146555.263 Easting: 383474.278

Description: ID=southerly tip of chevron arrow between Owensboro Road and US 98. Chevron touches south tip of grass traffic island.



Station Name: PASCO-03 GPSID: 04055C USGS Quad: ARIPEKA

NAD 1983 1999/NAVD 1988/GEOID 2003 - meters

Latitude: 28°25'20.21663" N Longitude: 82°38'43.07879" W

Ellipsoidal H: -20.178 Orthometric H: 5.881

Florida West Zone State Plane Coordinates - meters

Northing: 453174.235 Easting: 136779.261

UTM Zone 17 meters

Northing: 3145083.656 Easting: 338852.803

Description: ID= east tip of southerly (of 5) turn arrows in turn lane on east side of US 19



Station Name: PASCO-04 GPSID: 04055D USGS Quad: SPRING LAKE

NAD 1983 1999/NAVD 1988/GEOID 2003 - meters
Latitude: 28°24'12.81490" N Longitude: 82°18'42.29670" W
Ellipsoidal H: 37.701 Orthometric H: 64.099

Florida West Zone State Plane Coordinates - meters
Northing: 450969.468 Easting: 169452.49

UTM Zone 17 meters
Northing: 3142607.83 Easting: 371503.016

Description: ID-SE corner of concrete pad around storm drain on east side of Lake Iola Road



Station Name: PASCO-05 GPSID: 04055E USGS Quad: BRANCHBOROUGH

NAD 1983 1999/NAVD 1988/GEOID 2003 - meters

Latitude: 28°22'25.46617" N Longitude: 82°03'19.20529" W

Ellipsoidal H: 1.983 Orthometric H: 28.67

Florida West Zone State Plane Coordinates - meters

Northing: 447626.652 Easting: 194576.379

UTM Zone 17 meters

Northing: 3139057.258 Easting: 396593.798

Description: ID=SE corner of asphalt shoulder at point where shoulder widens, east side of SR 471



Station Name: PASCO-06 GPSID: 04055F USGS Quad: FIVAY JUNCTION

NAD 1983 1999/NAVD 1988/GEOID 2003 - meters
Latitude: 28°19'31.89760" N Longitude: 82°30'06.58118" W
Ellipsoidal H: -2.977 Orthometric H: 22.92

Florida West Zone State Plane Coordinates - meters
Northing: 442384.708 Easting: 150790.927

UTM Zone 17 meters
Northing: 3134179.198 Easting: 352773.263

Description: ID=SW corner of utility vault cover on west side of US 41, north side of Michigan Lane



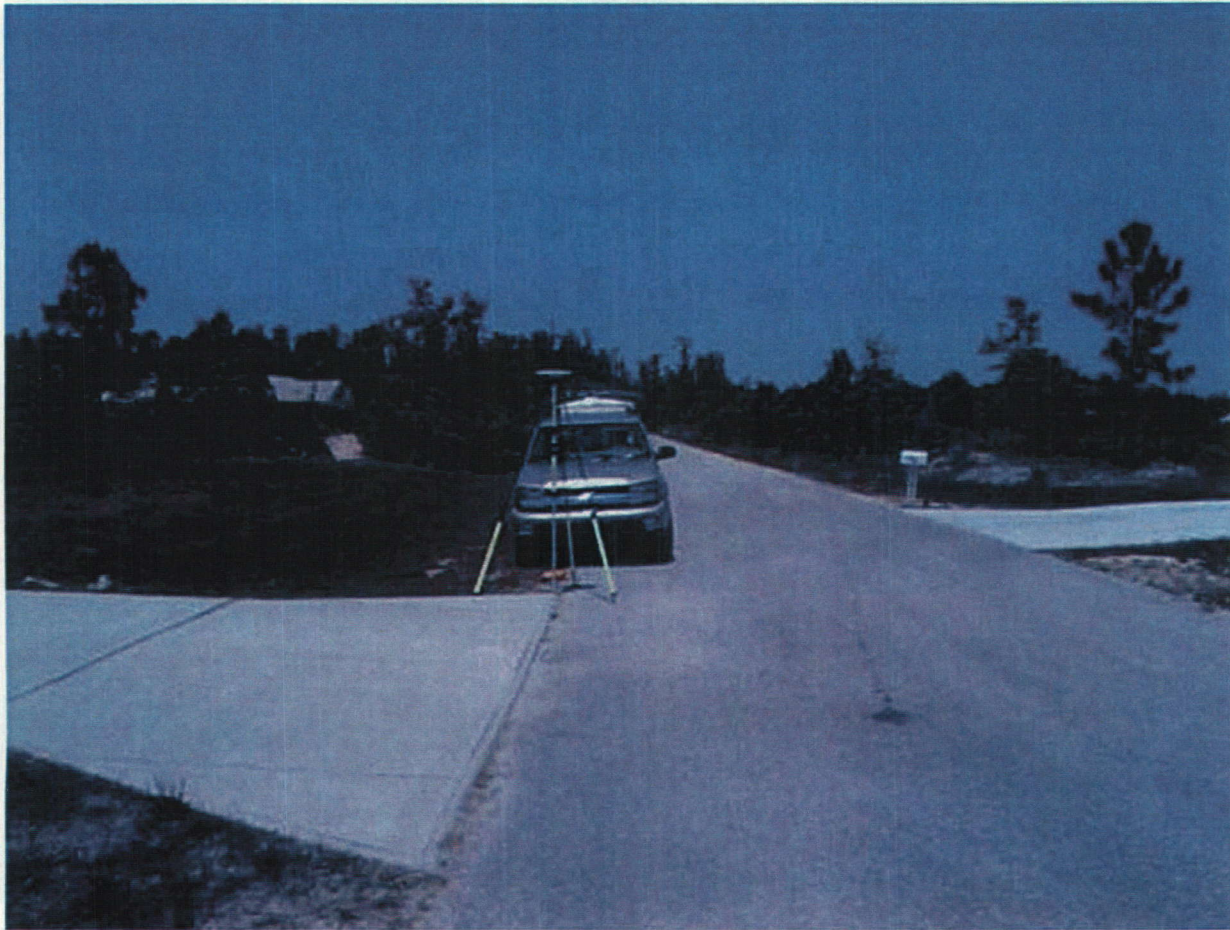
Station Name: PASCO-07 GPSID: 04055G USGS Quad: PORT RICHEY

NAD 1983 1999/NAVD 1988/GEOID 2003 - meters
Latitude: 28°18'36.94857" N Longitude: 82°42'04.04717" W
Ellipsoidal H: -23.096 Orthometric H: 2.556

Florida West Zone State Plane Coordinates - meters
Northing: 440790.502 Easting: 131237.744

UTM Zone 17 meters
Northing: 3132747.094 Easting: 333209.109

Description: ID=SW corner of concrete sidewalk on south side of church, north side of Jasmine Boulevard



Station Name: PASCO-08 GPSID: 04055H USGS Quad: EHREN

NAD 1983 1999/NAVD 1988/GEOID 2003 - meters

Latitude: 28°15'47.28445" N Longitude: 82°22'44.46864" W

Ellipsoidal H: -3.895 Orthometric H: 21.954

Florida West Zone State Plane Coordinates - meters

Northing: 435426.503 Easting: 162811.967

UTM Zone 17 meters

Northing: 3127122.593 Easting: 364734.902

Description: ID=NE corner of concrete driveway, west edge of Lovers Lane, second house north of Quail Hollow Boulevard on west side of street



Station Name: PASCO-09 GPSID: 04055I USGS Quad: ZEPHYRHILLS

NAD 1983 1999/NAVD 1988/GEOID 2003 - meters

Latitude: 28°12'59.96951" N Longitude: 82°10'47.36893" W

Ellipsoidal H: -1.787 Orthometric H: 24.356

Florida West Zone State Plane Coordinates - meters

Northing: 430230.992 Easting: 182348.632

UTM Zone 17 meters

Northing: 3121766.73 Easting: 384224.947

Description: ID=southerly tip of white chevron in merge area from SR 39 to US 301, chevron is second white chevron south to north



Station Name: PASCO-10 GPSID: AL7466 USGS Quad: ELFERS

NAD 1983 1999/NAVD 1988/GEOID 2003 - meters
Latitude: 28°11'07.28369" N Longitude: 82°44'23.46767" W
Ellipsoidal H: -20.585 Orthometric H: 4.627

Florida West Zone State Plane Coordinates - meters
Northing: 426970.712 Easting: 127354.815

UTM Zone 17 meters
Northing: 3118960.568 Easting: 329212.319

Description: ID=center of SW corner of concrete drop inlet rim on east side of US 19, west of parking lot



Station Name: PASCO-09 GPSID: 04055I USGS Quad: ZEPHYRHILLS

NAD 1983 1999/NAVD 1988/GEOID 2003 - meters

Latitude: 28°12'59.96951" N Longitude: 82°10'47.36893" W

Ellipsoidal H: -1.787 Orthometric H: 24.356

Florida West Zone State Plane Coordinates - meters

Northing: 430230.992 Easting: 182348.632

UTM Zone 17 meters

Northing: 3121766.73 Easting: 384224.947

Description: ID=southerly tip of white chevron in merge area from SR 39 to US 301, chevron is second white chevron south to north



Station Name: PASCO-10 GPSID: AL7466 USGS Quad: ELFERS

NAD 1983 1999/NAVD 1988/GEOID 2003 - meters

Latitude: 28°11'07.28369" N Longitude: 82°44'23.46767" W

Ellipsoidal H: -20.585 Orthometric H: 4.627

Florida West Zone State Plane Coordinates - meters

Northing: 426970.712 Easting: 127354.815

UTM Zone 17 meters

Northing: 3118960.568 Easting: 329212.319

Description: ID=center of SW corner of concrete drop inlet rim on east side of US 19, west of parking lot

Input file: C:\projects\04055\adjust\04055.iob
 Output file: C:\projects\04055\adjust\04055.lst
 Options file: C:\Program Files\Microsearch\GeoLab\default.gpj
 Geoid File: C:\geoids\geoid03\g2003u07.gsp

PARAMETERS		OBSERVATIONS	
Description	Number	Description	Number
No. of Stations	18	Directions	0
Coord Parameters	51	Distances	0
Free Latitudes	17	Azimuths	0
Free Longitudes	17	Vertical Angles	0
Free Heights	17	Zenithal Angles	0
Fixed Coordinates	3	Angles	0
Astro. Latitudes	0	Heights	0
Astro. Longitudes	0	Height Differences	0
Geoid Records	0	Auxiliary Params.	0
All Aux. Pars.	0	2-D Coords.	0
Direction Pars.	0	2-D Coord. Diffs.	0
Scale Parameters	0	3-D Coords.	0
Constant Pars.	0	3-D Coord. Diffs.	99
Rotation Pars.	0		
Translation Pars.	0		
	-----		-----
Total Parameters	51	Total Observations	99
Degrees of Freedom =		48	

SUMMARY OF SELECTED OPTIONS

OPTION	SELECTION
Computation Mode	Adjustment
Maximum Iterations	31
Convergence Criterion	0.00100
Angular Misclosure Limit Factor	2.00
Linear Misclosure Limit Factor	2.00
Residual Rejection Criterion	Tau Max
Confidence Region Types	1D 2D Station
Variance Factor (VF) Known	Yes
Scale Covariance Matrix With VF	Yes
Scale Residual Variances With VF	Yes
Force Convergence in Max Iters	No
Distances Contribute To Heights	No
Compute Full Inverse	Yes
Optimize Band Width	Yes

=====
04055
Microsearch Geolab, V2001.9.20.0 WGS 84 UNITS: m,DMS Page 0002
=====
Generate Initial Coordinates | Yes
Re-Transform Obs After 1st Pass | Yes
Geoid Interpolation Method | Bi-Quadratic

Input Station Data:

FFF STATION	ELIP-LATITUDE		ELIP-LONGITUDE		ELIP-HEIGHT
	ASTRO-LATITUDE		ASTRO-LONGITUDE		ORTHO-HEIGHT
	N/S DEFLECTION		N/S DEFLECTION		GEOID-HEIGHT
000 04055A	N 28 28	35.30849	W 82 29	21.74089	-12.750
	N 28 28	40.80849	W 82 29	18.69202	13.583
	0 0	5.50	0 0	2.68	-26.333
000 04055B	N 28 26	25.13623	W 82 11	23.85698	1.681
	N 28 26	27.57623	W 82 11	21.04797	28.313
	0 0	2.44	0 0	2.47	-26.632
000 04055C	N 28 25	20.31933	W 82 38	43.05473	-22.308
	N 28 25	25.55933	W 82 38	40.88295	3.752
	0 0	5.24	0 0	1.91	-26.060
000 04055D	N 28 24	12.93518	W 82 18	42.32476	39.879
	N 28 24	17.69518	W 82 18	38.99377	66.276
	0 0	4.76	0 0	2.93	-26.397
000 04055E	N 28 22	25.61656	W 82 3	19.18973	-5.176
	N 28 22	27.45656	W 82 3	17.03031	21.511
	0 0	1.84	0 0	1.90	-26.687
000 04055F	N 28 19	31.96202	W 82 30	6.57993	-8.444
	N 28 19	38.16202	W 82 30	4.26245	17.453
	0 0	6.20	0 0	2.04	-25.897
000 04055G	N 28 18	36.99097	W 82 42	4.01522	-22.065
	N 28 18	43.03097	W 82 42	1.15286	3.587
	0 0	6.04	0 0	2.52	-25.652
000 04055H	N 28 15	47.30222	W 82 22	44.47202	-5.751
	N 28 15	53.37222	W 82 22	40.39610	20.098
	0 0	6.07	0 0	3.59	-25.849
000 04055I	N 28 13	0.04164	W 82 10	47.34702	-3.296
	N 28 13	4.86164	W 82 10	41.05989	22.847
	0 0	4.82	0 0	5.54	-26.143
000 04055X	N 28 28	32.08672	W 82 26	29.11904	-2.231
	N 28 28	37.24672	W 82 26	25.62652	24.168
	0 0	5.16	0 0	3.07	-26.399
000 04055Y	N 28 19	24.40155	W 82 12	42.80158	8.382
	N 28 19	29.45155	W 82 12	38.03039	34.733
	0 0	5.05	0 0	4.20	-26.352
000 04055Z	N 28 16	38.35807	W 82 38	40.77375	-21.761
	N 28 16	44.85807	W 82 38	38.49138	3.844
	0 0	6.50	0 0	2.01	-25.605
000 AL7030	N 28 26	5.49263	W 82 18	9.68487	41.928
	N 28 26	9.54263	W 82 18	6.75091	68.413
	0 0	4.05	0 0	2.58	-26.485
000 AL7347	N 28 25	23.10194	W 82 38	41.45791	-26.325
	N 28 25	28.33194	W 82 38	39.29749	-0.262
	0 0	5.23	0 0	1.90	-26.062
000 AL7466	N 28 11	7.32356	W 82 44	23.44662	-19.062
	N 28 11	12.62356	W 82 44	20.80317	6.150
	0 0	5.30	0 0	2.33	-25.212
000 AL7876	N 28 13	43.31960	W 82 9	37.93645	-0.300
	N 28 13	47.75960	W 82 9	31.84156	25.924
	0 0	4.44	0 0	5.37	-26.224

Input Station Data:

FFF STATION	ELIP-LATITUDE	ELIP-LONGITUDE	ELIP-HEIGHT
	ASTRO-LATITUDE	ASTRO-LONGITUDE	ORTHO-HEIGHT
	N/S DEFLECTION	N/S DEFLECTION	GEOID-HEIGHT
111 BKVL	N 28 28 25.66910	W 82 27 13.19472	-5.003
	N 28 28 30.89910	W 82 27 9.62262	21.372
	0 0 5.23	0 0 3.14	-26.375
000 ZEFR	N 28 13 39.39104	W 82 9 52.60410	16.373
	N 28 13 43.89104	W 82 9 46.47523	42.584
	0 0 4.50	0 0 5.40	-26.211

Misclosures (pass 1):

NOTE: Observation values shown are reduced to mark-to-mark.

TYPE AT	FROM	TO	OBSERVATION	STD.DEV.	MISC
GROUP: ID:32	RMS:0.014	FLOAT	Variance:1.30	Duration:514 m	Day
DXCT	04055Z	BKVL	17222.169	0.007	0.690
DYCT	04055Z	BKVL	12679.224	0.008	-5.317
DZCT	04055Z	BKVL	19165.889	0.007	0.331
GROUP: ID:39	RMS:0.011	Ratio:20.28	Variance:1.00	Duration:20 m	Day
DXCT	04055Y	04055E	14841.063	0.007	-0.106
DYCT	04055Y	04055E	4733.357	0.010	3.274
DZCT	04055Y	04055E	4902.133	0.008	1.067
GROUP: ID:40	RMS:0.014	Ratio:9.80	Variance:1.60	Duration:19 m	Day:
DXCT	04055Y	04055E	14841.060	0.007	-0.102
DYCT	04055Y	04055E	4733.338	0.008	3.292
DZCT	04055Y	04055E	4902.136	0.007	1.064
GROUP: ID:41	RMS:0.010	Ratio:14.01	Variance:0.80	Duration:19 m	Day
DXCT	04055Y	04055H	-15823.840	0.007	0.304
DYCT	04055Y	04055H	-5321.457	0.008	-3.326
DZCT	04055Y	04055H	-5891.559	0.008	-0.001
GROUP: ID:42	RMS:0.011	Ratio:15.40	Variance:1.00	Duration:20 m	Day
DXCT	04055Y	04055H	-15823.848	0.007	0.312
DYCT	04055Y	04055H	-5321.453	0.010	-3.330
DZCT	04055Y	04055H	-5891.554	0.008	-0.005
GROUP: ID:43	RMS:0.013	Ratio:13.76	Variance:1.40	Duration:19 m	Day
DXCT	04055Y	AL7030	-9606.132	0.007	0.646
DYCT	04055Y	AL7030	4592.284	0.008	-5.217
DZCT	04055Y	AL7030	10879.236	0.010	0.385
GROUP: ID:44	RMS:0.017	Ratio:10.75	Variance:2.40	Duration:20 m	Day
DXCT	04055Y	AL7030	-9606.131	0.007	0.645
DYCT	04055Y	AL7030	4592.252	0.008	-5.186
DZCT	04055Y	AL7030	10879.224	0.008	0.397
GROUP: ID:45	RMS:0.010	Ratio:20.34	Variance:0.90	Duration:18 m	Day
DXCT	04055Y	04055D	-10265.236	0.007	-0.085
DYCT	04055Y	04055D	2841.127	0.008	-5.461
DZCT	04055Y	04055D	7826.433	0.008	4.686
GROUP: ID:46	RMS:0.014	Ratio:8.38	Variance:1.60	Duration:21 m	Day:
DXCT	04055Y	04055D	-10265.235	0.007	-0.086
DYCT	04055Y	04055D	2841.099	0.008	-5.432
DZCT	04055Y	04055D	7826.432	0.008	4.687
GROUP: ID:47	RMS:0.009	Ratio:12.73	Variance:0.90	Duration:20 m	Day
DXCT	04055Y	04055B	1292.132	0.007	1.041
DYCT	04055Y	04055B	6403.636	0.009	-6.266
DZCT	04055Y	04055B	11390.057	0.008	2.162
GROUP: ID:48	RMS:0.011	Ratio:36.35	Variance:0.80	Duration:19 m	Day
DXCT	04055Y	04055B	1292.137	0.007	1.036
DYCT	04055Y	04055B	6403.675	0.008	-6.305
DZCT	04055Y	04055B	11390.038	0.007	2.182
GROUP: ID:49	RMS:0.015	Ratio:10.24	Variance:1.20	Duration:15 m	Day
DXCT	04055Z	AL7466	-8654.662	0.007	1.357
DYCT	04055Z	AL7466	-5966.053	0.008	-6.013
DZCT	04055Z	AL7466	-8979.235	0.007	2.132
GROUP: ID:50	RMS:0.019	Ratio:66.26	Variance:1.80	Duration:16 m	Day

Misclosures (pass 1):

NOTE: Observation values shown are reduced to mark-to-mark.

TYPE AT	FROM	TO	OBSERVATION	STD.DEV.	MISC
DXCT	04055Z	04055G	-5715.126	0.007	1.587
DYCT	04055Z	04055G	1016.376	0.010	-5.482
DZCT	04055Z	04055G	3213.611	0.008	1.972
GROUP: ID:51	RMS:0.013	Ratio:14.86	Variance:1.30	Duration:14 m	Day
DXCT	04055Z	04055G	-5715.135	0.007	1.595
DYCT	04055Z	04055G	1016.405	0.010	-5.511
DZCT	04055Z	04055G	3213.617	0.008	1.967
GROUP: ID:52	RMS:0.015	Ratio:19.70	Variance:1.20	Duration:19 m	Day
DXCT	04055Z	04055C	-1039.369	0.007	0.911
DYCT	04055Z	04055C	7561.755	0.009	-1.879
DZCT	04055Z	04055C	14138.868	0.007	2.096
GROUP: ID:53	RMS:0.012	Ratio:24.41	Variance:1.20	Duration:15 m	Day
DXCT	04055Z	04055C	-1039.364	0.007	0.906
DYCT	04055Z	04055C	7561.772	0.009	-1.896
DZCT	04055Z	04055C	14138.863	0.008	2.101
GROUP: ID:54	RMS:0.014	Ratio:11.42	Variance:1.50	Duration:15 m	Day
DXCT	04055Z	AL7347	-1001.306	0.007	0.277
DYCT	04055Z	AL7347	7607.649	0.011	1.732
DZCT	04055Z	AL7347	14212.848	0.008	1.541
GROUP: ID:55	RMS:0.015	Ratio:9.30	Variance:1.50	Duration:16 m	Day:
DXCT	04055Z	AL7347	-1001.313	0.007	0.284
DYCT	04055Z	AL7347	7607.664	0.009	1.716
DZCT	04055Z	AL7347	14212.841	0.008	1.548
GROUP: ID:58	RMS:0.018	Ratio:9.18	Variance:1.90	Duration:16 m	Day:
DXCT	04055Z	04055F	13566.357	0.008	-0.028
DYCT	04055Z	04055F	4311.416	0.009	0.384
DZCT	04055Z	04055F	4712.312	0.008	-0.523
GROUP: ID:59	RMS:0.017	Ratio:21.30	Variance:1.80	Duration:17 m	Day
DXCT	04055Z	04055F	13566.354	0.008	-0.025
DYCT	04055Z	04055F	4311.403	0.014	0.397
DZCT	04055Z	04055F	4712.303	0.009	-0.514
GROUP: ID:61	RMS:0.010	Ratio:30.46	Variance:0.70	Duration:16 m	Day
DXCT	04055Z	AL7466	-8654.665	0.007	1.359
DYCT	04055Z	AL7466	-5966.058	0.008	-6.009
DZCT	04055Z	AL7466	-8979.241	0.007	2.138
GROUP: ID:62	RMS:0.015	FLOAT	Variance:1.40	Duration:514 m	Day
DXCT	ZEFR	04055Z	-47039.136	0.007	-4.355
DYCT	ZEFR	04055Z	-3626.529	0.008	18.314
DZCT	ZEFR	04055Z	4844.907	0.007	-9.913
GROUP: ID:63	RMS:0.013	FLOAT	Variance:1.30	Duration:514 m	Day
DXCT	ZEFR	BKVL	-29816.970	0.007	-3.661
DYCT	ZEFR	BKVL	9052.700	0.008	12.992
DZCT	ZEFR	BKVL	24010.790	0.007	-9.577
GROUP: ID:64	RMS:0.013	FLOAT	Variance:1.30	Duration:652 m	Day
DXCT	ZEFR	04055Y	-5275.827	0.007	-4.317
DYCT	ZEFR	04055Y	4342.936	0.007	18.182
DZCT	ZEFR	04055Y	9359.864	0.007	-9.978
GROUP: ID:65	RMS:0.014	FLOAT	Variance:1.30	Duration:514 m	Day
DXCT	04055Z	04055Y	41763.307	0.007	0.039

Misclosures (pass 1):

NOTE: Observation values shown are reduced to mark-to-mark.

TYPE AT	FROM	TO	OBSERVATION	STD.DEV.	MISC
DYCT	04055Z	04055Y	7969.472	0.008	-0.139
DZCT	04055Z	04055Y	4514.952	0.007	-0.060
GROUP: ID:66	RMS:0.012	FLOAT	Variance:1.30	Duration:514 m Day	
DXCT	BKVL	04055Y	24541.139	0.007	-0.652
DYCT	BKVL	04055Y	-4709.750	0.008	5.177
DZCT	BKVL	04055Y	-14650.935	0.007	-0.392
GROUP: ID:67	RMS:0.005	Ratio:20.52	Variance:3.20	Duration:16 m Day	
DXCT	BKVL	04055A	-3485.118	0.007	-0.872
DYCT	BKVL	04055A	-317.977	0.009	6.858
DZCT	BKVL	04055A	256.260	0.008	0.898
GROUP: ID:68	RMS:0.008	Ratio:14.07	Variance:4.90	Duration:14 m Day	
DXCT	BKVL	04055A	-3485.114	0.007	-0.876
DYCT	BKVL	04055A	-317.976	0.007	6.857
DZCT	BKVL	04055A	256.246	0.008	0.912
GROUP: ID:69	RMS:0.008	Ratio:14.41	Variance:6.00	Duration:16 m Day	
DXCT	BKVL	04055X	1177.103	0.007	-0.615
DYCT	BKVL	04055X	249.602	0.008	-1.058
DZCT	BKVL	04055X	170.578	0.007	4.412
GROUP: ID:70	RMS:0.003	Ratio:32.18	Variance:0.80	Duration:20 m Day	
DXCT	AL7876	ZEFR	-389.266	0.007	2.892
DYCT	AL7876	ZEFR	-113.277	0.007	-12.476
DZCT	AL7876	ZEFR	-106.686	0.007	8.017
GROUP: ID:71	RMS:0.006	Ratio:42.32	Variance:2.70	Duration:19 m Day	
DXCT	ZEFR	04055I	-1399.694	0.007	-3.390
DYCT	ZEFR	04055I	-769.040	0.007	15.422
DZCT	ZEFR	04055I	-1068.308	0.007	-8.330
GROUP: ID:72	RMS:0.010	Ratio:23.69	Variance:8.30	Duration:16 m Day	
DXCT	ZEFR	04055I	-1399.690	0.007	-3.394
DYCT	ZEFR	04055I	-769.055	0.008	15.437
DZCT	ZEFR	04055I	-1068.297	0.007	-8.341
GROUP: ID:73	RMS:0.005	Ratio:23.80	Variance:2.00	Duration:20 m Day	
DXCT	AL7876	ZEFR	-389.268	0.007	2.894
DYCT	AL7876	ZEFR	-113.282	0.007	-12.472
DZCT	AL7876	ZEFR	-106.680	0.007	8.012

Solution (pass 1):

NAME	TYPE		OLD VALUE		CORRECTION		UPDATED VALUE
04055A	ELAT	N 28 28	35.30849	0 0	-0.13291	N 28 28	35.17558
04055A	ELON	W 82 29	21.74089	0 0	-0.00110	W 82 29	21.74199
04055A	EHYT		-12.750		5.645		-7.105
04055B	ELAT	N 28 26	25.13623	0 0	-0.03306	N 28 26	25.10317
04055B	ELON	W 82 11	23.85698	0 0	-0.00847	W 82 11	23.86545
04055B	EHYT		1.681		-1.860		-0.179
04055C	ELAT	N 28 25	20.31933	0 0	-0.10262	N 28 25	20.21671
04055C	ELON	W 82 38	43.05473	0 0	-0.02404	W 82 38	43.07877
04055C	EHYT		-22.308		2.128		-20.180
04055D	ELAT	N 28 24	12.93518	0 0	-0.12010	N 28 24	12.81508
04055D	ELON	W 82 18	42.32476	0 0	0.02819	W 82 18	42.29657
04055D	EHYT		39.879		-2.187		37.692
04055E	ELAT	N 28 22	25.61656	0 0	-0.15022	N 28 22	25.46634
04055E	ELON	W 82 03	19.18973	0 0	-0.01543	W 82 03	19.20516
04055E	EHYT		-5.176		7.150		1.974
04055F	ELAT	N 28 19	31.96202	0 0	-0.06435	N 28 19	31.89767
04055F	ELON	W 82 30	6.57993	0 0	-0.00123	W 82 30	6.58116
04055F	EHYT		-8.444		5.466		-2.978
04055G	ELAT	N 28 18	36.99097	0 0	-0.04232	N 28 18	36.94865
04055G	ELON	W 82 42	4.01522	0 0	-0.03193	W 82 42	4.04715
04055G	EHYT		-22.065		-1.033		-23.098
04055H	ELAT	N 28 15	47.30222	0 0	-0.01760	N 28 15	47.28462
04055H	ELON	W 82 22	44.47202	0 0	0.00351	W 82 22	44.46851
04055H	EHYT		-5.751		1.846		-3.905
04055I	ELAT	N 28 13	0.04164	0 0	-0.07208	N 28 12	59.96956
04055I	ELON	W 82 10	47.34702	0 0	-0.02199	W 82 10	47.36901
04055I	EHYT		-3.296		1.501		-1.795
04055X	ELAT	N 28 28	32.08672	0 0	-0.11098	N 28 28	31.97574
04055X	ELON	W 82 26	29.11904	0 0	0.02752	W 82 26	29.09152
04055X	EHYT		-2.231		-2.954		-5.185
04055Y	ELAT	N 28 19	24.40155	0 0	-0.06921	N 28 19	24.33234
04055Y	ELON	W 82 12	42.80158	0 0	-0.00203	W 82 12	42.80361
04055Y	EHYT		8.382		4.783		13.165
04055Z	ELAT	N 28 16	38.35807	0 0	-0.07303	N 28 16	38.28504
04055Z	ELON	W 82 38	40.77375	0 0	0.00018	W 82 38	40.77357
04055Z	EHYT		-21.761		4.880		-16.881
AL7030	ELAT	N 28 26	5.49263	0 0	0.00038	N 28 26	5.49301
AL7030	ELON	W 82 18	9.68487	0 0	0.00036	W 82 18	9.68451
AL7030	EHYT		41.928		-0.017		41.911
AL7347	ELAT	N 28 25	23.10194	0 0	-0.14340	N 28 25	22.95854
AL7347	ELON	W 82 38	41.45791	0 0	-0.01814	W 82 38	41.47605
AL7347	EHYT		-26.325		5.610		-20.715
AL7466	ELAT	N 28 11	7.32356	0 0	-0.03979	N 28 11	7.28377
AL7466	ELON	W 82 44	23.44662	0 0	-0.02103	W 82 44	23.46765
AL7466	EHYT		-19.062		-1.531		-20.593
AL7876	ELAT	N 28 13	43.31960	0 0	-0.03526	N 28 13	43.28434
AL7876	ELON	W 82 09	37.93645	0 0	-0.02538	W 82 09	37.96183
AL7876	EHYT		-0.300		-1.289		-1.589
ZEFR	ELAT	N 28 13	39.39104	0 0	-0.06872	N 28 13	39.32232
ZEFR	ELON	W 82 09	52.60410	0 0	-0.06811	W 82 09	52.67221

=====
04055
Microsearch GeoLab, V2001.9.20.0 WGS 84 UNITS: m,DMS Page 0009
=====

Solution (pass 1):

NAME	TYPE	OLD VALUE	CORRECTION	UPDATED VALUE
ZEFR	EHYT	16.373	-16.315	0.058

Adjusted PLH Coordinates:

CODE	FFF	STATION	LATITUDE		LONGITUDE		ELIP-HEIGHT	
			STD DEV		STD DEV		STD DEV	
PLH	000	04055A	N 28 28	35.17558	W 82 29	21.74199	-7.105	m 0
				0.005		0.005	0.006	
PLH	000	04055B	N 28 26	25.10317	W 82 11	23.86545	-0.179	m 0
				0.007		0.007	0.009	
PLH	000	04055C	N 28 25	20.21671	W 82 38	43.07878	-20.180	m 0
				0.007		0.007	0.009	
PLH	000	04055D	N 28 24	12.81508	W 82 18	42.29657	37.692	m 0
				0.007		0.007	0.008	
PLH	000	04055E	N 28 22	25.46634	W 82 3	19.20516	1.974	m 0
				0.007		0.007	0.009	
PLH	000	04055F	N 28 19	31.89767	W 82 30	6.58116	-2.978	m 0
				0.007		0.007	0.010	
PLH	000	04055G	N 28 18	36.94865	W 82 42	4.04715	-23.098	m 0
				0.007		0.007	0.009	
PLH	000	04055H	N 28 15	47.28462	W 82 22	44.46851	-3.905	m 0
				0.007		0.007	0.009	
PLH	000	04055I	N 28 12	59.96956	W 82 10	47.36901	-1.795	m 0
				0.007		0.007	0.008	
PLH	000	04055X	N 28 28	31.97574	W 82 26	29.09152	-5.185	m 0
				0.007		0.007	0.008	
PLH	000	04055Y	N 28 19	24.33234	W 82 12	42.80361	13.165	m 0
				0.005		0.005	0.006	
PLH	000	04055Z	N 28 16	38.28504	W 82 38	40.77357	-16.881	m 0
				0.005		0.005	0.006	
PLH	000	AL7030	N 28 26	5.49301	W 82 18	9.68451	41.911	m 0
				0.008		0.007	0.009	
PLH	000	AL7347	N 28 25	22.95854	W 82 38	41.47605	-20.715	m 0
				0.007		0.007	0.009	
PLH	000	AL7466	N 28 11	7.28377	W 82 44	23.46765	-20.593	m 0
				0.007		0.007	0.008	
PLH	000	AL7876	N 28 13	43.28434	W 82 9	37.96183	-1.589	m 0
				0.007		0.007	0.008	
PLH	111	BKVL	N 28 28	25.66910	W 82 27	13.19472	-5.003	m 0
				0.000		0.000	0.000	
PLH	000	ZEFR	N 28 13	39.32232	W 82 9	52.67221	0.058	m 0
				0.005		0.005	0.006	

Adjusted PLO Coordinates:

CODE	FFF	STATION	LATITUDE		LONGITUDE		O-HEIGHT	
			STD DEV		STD DEV		STD DEV	
PLO	000	04055A	N 28 28	35.17558	W 82 29	21.74199	19.228 m	0
				0.005		0.005	0.006	
PLO	000	04055B	N 28 26	25.10317	W 82 11	23.86545	26.453 m	0
				0.007		0.007	0.009	
PLO	000	04055C	N 28 25	20.21671	W 82 38	43.07878	5.880 m	0
				0.007		0.007	0.009	
PLO	000	04055D	N 28 24	12.81508	W 82 18	42.29657	64.089 m	0
				0.007		0.007	0.008	
PLO	000	04055E	N 28 22	25.46634	W 82 3	19.20516	28.660 m	0
				0.007		0.007	0.009	
PLO	000	04055F	N 28 19	31.89767	W 82 30	6.58116	22.919 m	0
				0.007		0.007	0.010	
PLO	000	04055G	N 28 18	36.94865	W 82 42	4.04715	2.555 m	0
				0.007		0.007	0.009	
PLO	000	04055H	N 28 15	47.28462	W 82 22	44.46851	21.944 m	0
				0.007		0.007	0.009	
PLO	000	04055I	N 28 12	59.96956	W 82 10	47.36901	24.348 m	0
				0.007		0.007	0.008	
PLO	000	04055X	N 28 28	31.97574	W 82 26	29.09152	21.214 m	0
				0.007		0.007	0.008	
PLO	000	04055Y	N 28 19	24.33234	W 82 12	42.80361	39.517 m	0
				0.005		0.005	0.006	
PLO	000	04055Z	N 28 16	38.28504	W 82 38	40.77357	8.725 m	0
				0.005		0.005	0.006	
PLO	000	AL7030	N 28 26	5.49301	W 82 18	9.68451	68.396 m	0
				0.008		0.007	0.009	
PLO	000	AL7347	N 28 25	22.95854	W 82 38	41.47605	5.348 m	0
				0.007		0.007	0.009	
PLO	000	AL7466	N 28 11	7.28377	W 82 44	23.46765	4.619 m	0
				0.007		0.007	0.008	
PLO	000	AL7876	N 28 13	43.28434	W 82 9	37.96183	24.635 m	0
				0.007		0.007	0.008	
PLO	111	BKVL	N 28 28	25.66910	W 82 27	13.19472	21.372 m	0
				0.000		0.000	0.000	
PLO	000	ZEFR	N 28 13	39.32232	W 82 9	52.67221	26.268 m	0
				0.005		0.005	0.006	

Adjusted XYZ Coordinates:

CODE	FFF	STATION	X-COORDINATE STD DEV	Y-COORDINATE STD DEV	Z-COORDINATE STD DEV	
XYZ	04055A		733379.223 0.005	-5562595.302 0.006	3023018.273 m 0.005	0
XYZ	04055B		762697.615 0.007	-5560583.421 0.008	3019501.131 m 0.008	0
XYZ	04055C		718602.805 0.007	-5567394.787 0.009	3017734.999 m 0.008	0
XYZ	04055D		751140.244 0.007	-5564145.966 0.008	3015937.519 m 0.008	0
XYZ	04055E		776246.541 0.007	-5562253.734 0.009	3013013.221 m 0.008	0
XYZ	04055F		733208.527 0.008	-5570645.138 0.010	3008308.439 m 0.008	0
XYZ	04055G		713927.041 0.007	-5573940.160 0.009	3006809.747 m 0.008	0
XYZ	04055H		745581.635 0.007	-5572308.535 0.008	3002219.530 m 0.008	0
XYZ	04055I		765281.616 0.007	-5572099.067 0.008	2997682.923 m 0.007	0
XYZ	04055X		738041.442 0.007	-5562027.723 0.008	3022932.598 m 0.008	0
XYZ	04055Y		761405.479 0.005	-5566987.080 0.006	3008111.086 m 0.005	0
XYZ	04055Z		719642.172 0.005	-5574956.550 0.006	3003596.133 m 0.005	0
XYZ	AL7030		751799.348 0.007	-5562394.811 0.008	3018990.316 m 0.008	0
XYZ	AL7347		718640.862 0.007	-5567348.892 0.009	3017808.978 m 0.008	0
XYZ	AL7466		710987.508 0.007	-5580922.606 0.008	2994616.895 m 0.008	0
XYZ	AL7876		767070.575 0.007	-5571216.741 0.008	2998857.909 m 0.007	0
XYZ	BKVL		736864.340 0.000	-5562277.326 0.000	3022762.020 m 0.000	0
XYZ	ZEFR		766681.308 0.005	-5571330.021 0.006	2998751.226 m 0.005	0

Geoid Values:

CODE	STATION	N/S DEFLECTION		E/W DEFLECTION		UNDULATION	
GEOI	04055A	0	0	5.50	0 0	2.68	-26.333 m
GEOI	04055B	0	0	2.44	0 0	2.47	-26.632 m
GEOI	04055C	0	0	5.24	0 0	1.91	-26.060 m
GEOI	04055D	0	0	4.76	0 0	2.93	-26.397 m
GEOI	04055E	0	0	1.84	0 0	1.90	-26.687 m
GEOI	04055F	0	0	6.20	0 0	2.04	-25.897 m
GEOI	04055G	0	0	6.04	0 0	2.52	-25.652 m
GEOI	04055H	0	0	6.07	0 0	3.59	-25.849 m
GEOI	04055I	0	0	4.82	0 0	5.54	-26.143 m
GEOI	04055X	0	0	5.16	0 0	3.07	-26.399 m
GEOI	04055Y	0	0	5.05	0 0	4.20	-26.352 m
GEOI	04055Z	0	0	6.50	0 0	2.01	-25.605 m
GEOI	AL7030	0	0	4.05	0 0	2.58	-26.485 m
GEOI	AL7347	0	0	5.23	0 0	1.90	-26.062 m
GEOI	AL7466	0	0	5.30	0 0	2.33	-25.212 m
GEOI	AL7876	0	0	4.44	0 0	5.37	-26.224 m
GEOI	BKVL	0	0	5.23	0 0	3.14	-26.375 m
GEOI	ZEFR	0	0	4.50	0 0	5.40	-26.211 m

Residuals (critical value = 3.465, N,E,Up for 3D):
 NOTE: Observation values shown are reduced to mark-to-mark.

TYPE AT	FROM	TO	OBSERVATION	RESIDUAL	STD DEV	STD DEV	PPM

GROUP: ID:32	RMS:0.014	FLOAT	Variance:1.30	Duration:514	m	Day	
DXCT	04055Z	BKVL	17222.16900	-0.001			-0.151
			0.009	0.006			0.03
DYCT	04055Z	BKVL	12679.22350	-0.001			-0.154
			0.008	0.006			0.03
DZCT	04055Z	BKVL	19165.88880	-0.002			-0.553
			0.005	0.003			0.07

GROUP: ID:39	RMS:0.011	Ratio:20.28	Variance:1.00	Duration:20	m	Day	
DXCT	04055Y	04055E	14841.06340	-0.003			-0.435
			0.010	0.007			0.19
DYCT	04055Y	04055E	4733.35670	-0.003			-0.534
			0.008	0.006			0.19
DZCT	04055Y	04055E	4902.13290	0.010			1.765
			0.007	0.006			0.62

GROUP: ID:40	RMS:0.014	Ratio:9.80	Variance:1.60	Duration:19	m	Day:	
DXCT	04055Y	04055E	14841.05980	0.003			0.426
			0.009	0.006			0.16
DYCT	04055Y	04055E	4733.33820	0.003			0.520
			0.008	0.006			0.18
DZCT	04055Y	04055E	4902.13600	-0.007			-2.203
			0.005	0.003			0.43

GROUP: ID:41	RMS:0.010	Ratio:14.01	Variance:0.80	Duration:19	m	Day	
DXCT	04055Y	04055H	-15823.84010	0.003			0.505
			0.009	0.006			0.18
DYCT	04055Y	04055H	-5321.45690	-0.004			-0.674
			0.008	0.006			0.21
DZCT	04055Y	04055H	-5891.55900	-0.001			-0.190
			0.005	0.003			0.03

GROUP: ID:42	RMS:0.011	Ratio:15.40	Variance:1.00	Duration:20	m	Day	
DXCT	04055Y	04055H	-15823.84820	-0.003			-0.447
			0.010	0.007			0.18
DYCT	04055Y	04055H	-5321.45320	0.004			0.632
			0.008	0.006			0.21
DZCT	04055Y	04055H	-5891.55440	0.001			0.261
			0.007	0.006			0.08

GROUP: ID:43	RMS:0.013	Ratio:13.76	Variance:1.40	Duration:19	m	Day	
DXCT	04055Y	AL7030	-9606.13210	-0.013			-1.603
			0.011	0.008			0.86
DYCT	04055Y	AL7030	4592.28370	-0.001			-0.245
			0.008	0.006			0.09
DZCT	04055Y	AL7030	10879.23620	0.010			15.962
			0.003	0.001			0.64

GROUP: ID:44	RMS:0.017	Ratio:10.75	Variance:2.40	Duration:20	m	Day	
DXCT	04055Y	AL7030	-9606.13100	0.013			2.108
			0.009	0.006			0.85
DYCT	04055Y	AL7030	4592.25210	0.002			0.310
			0.008	0.006			0.12

Residuals (critical value = 3.465, N,E,Up for 3D):
 NOTE: Observation values shown are reduced to mark-to-mark.

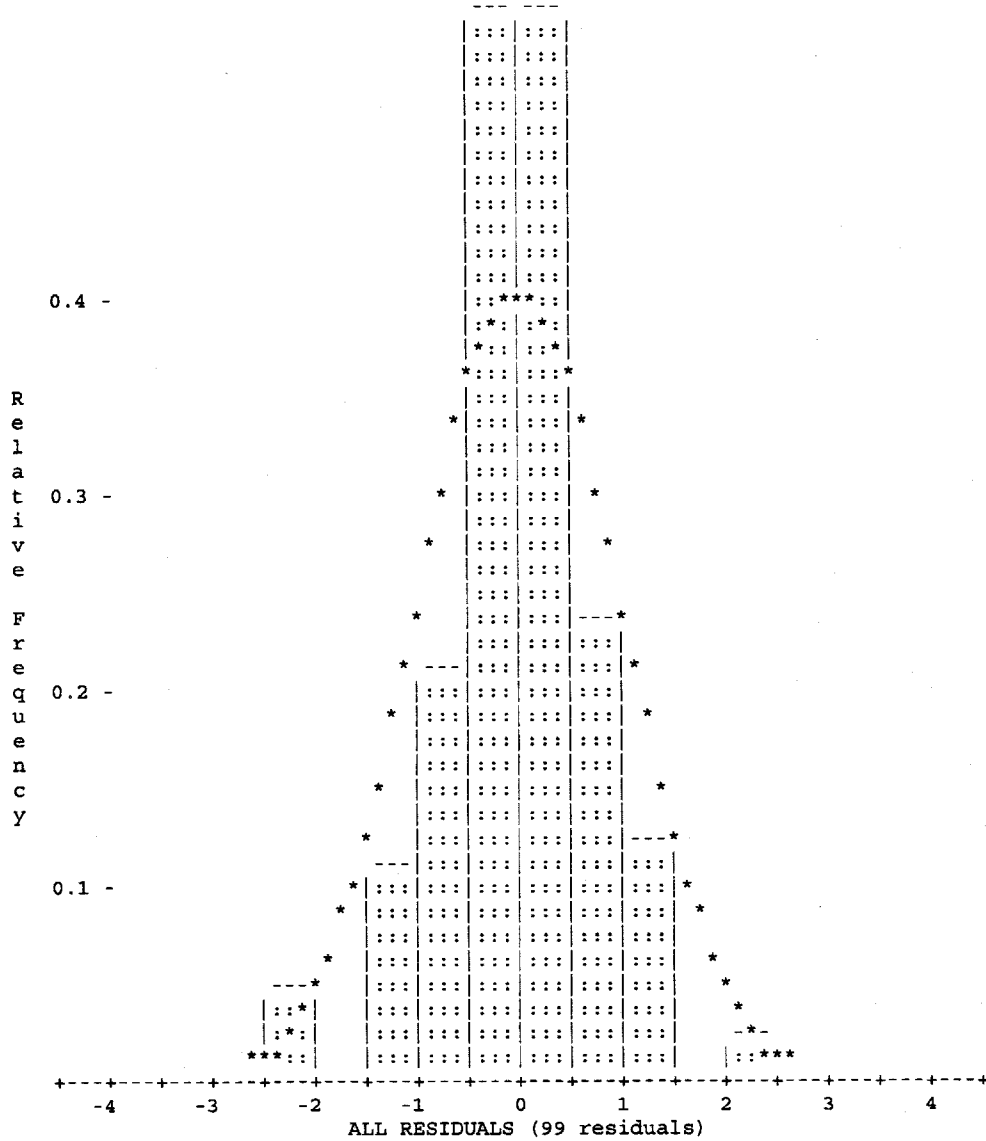
TYPE AT	FROM	TO	OBSERVATION STD DEV	RESIDUAL STD DEV	STD RES PPM
GROUP: ID:51 RMS:0.013 Ratio:14.86 Variance:1.30 Duration:14 m Day					
DXCT	04055Z	04055G	-5715.13460	-0.009	-1.266
			0.010	0.007	1.35
DYCT	04055Z	04055G	1016.40500	0.002	0.328
			0.008	0.006	0.29
DZCT	04055Z	04055G	3213.61690	0.012	2.155
			0.008	0.005	1.78
GROUP: ID:52 RMS:0.015 Ratio:19.70 Variance:1.20 Duration:19 m Day					
DXCT	04055Z	04055C	-1039.36850	0.002	0.365
			0.009	0.006	0.14
DYCT	04055Z	04055C	7561.75520	0.003	0.557
			0.008	0.006	0.20
DZCT	04055Z	04055C	14138.86780	-0.007	-1.687
			0.006	0.004	0.45
GROUP: ID:53 RMS:0.012 Ratio:24.41 Variance:1.20 Duration:15 m Day					
DXCT	04055Z	04055C	-1039.36440	-0.002	-0.217
			0.010	0.007	0.10
DYCT	04055Z	04055C	7561.77210	-0.003	-0.523
			0.008	0.006	0.19
DZCT	04055Z	04055C	14138.86350	0.009	1.856
			0.007	0.005	0.56
GROUP: ID:54 RMS:0.014 Ratio:11.42 Variance:1.50 Duration:15 m Day					
DXCT	04055Z	AL7347	-1001.30610	0.002	0.245
			0.011	0.008	0.12
DYCT	04055Z	AL7347	7607.64890	-0.002	-0.404
			0.009	0.006	0.15
DZCT	04055Z	AL7347	14212.84780	-0.010	-1.408
			0.009	0.007	0.62
GROUP: ID:55 RMS:0.015 Ratio:9.30 Variance:1.50 Duration:16 m Day:					
DXCT	04055Z	AL7347	-1001.31350	-0.000	-0.023
			0.010	0.007	0.01
DYCT	04055Z	AL7347	7607.66450	0.003	0.500
			0.008	0.006	0.18
DZCT	04055Z	AL7347	14212.84130	0.008	2.607
			0.006	0.003	0.47
GROUP: ID:58 RMS:0.018 Ratio:9.18 Variance:1.90 Duration:16 m Day:					
DXCT	04055Z	04055F	13566.35700	-0.007	-1.017
			0.010	0.007	0.45
DYCT	04055Z	04055F	4311.41640	-0.002	-0.406
			0.008	0.006	0.15
DZCT	04055Z	04055F	4712.31200	0.001	0.553
			0.006	0.002	0.07
GROUP: ID:59 RMS:0.017 Ratio:21.30 Variance:1.80 Duration:17 m Day					
DXCT	04055Z	04055F	13566.35440	0.007	0.735
			0.012	0.010	0.48
DYCT	04055Z	04055F	4311.40320	0.002	0.276
			0.009	0.007	0.13
DZCT	04055Z	04055F	4712.30300	-0.006	-0.608

Residuals (critical value = 3.465, N,E,Up for 3D):
 NOTE: Observation values shown are reduced to mark-to-mark.

TYPE AT	FROM	TO	OBSERVATION STD DEV	RESIDUAL STD DEV	STD RES PPM
			0.011	0.010	0.40
GROUP: ID:61	RMS:0.010	Ratio:30.46	Variance:0.70	Duration:16 m	Day
DXCT	04055Z	AL7466	-8654.66460	0.003	0.558
			0.009	0.006	0.25
DYCT	04055Z	AL7466	-5966.05760	0.001	0.256
			0.008	0.006	0.10
DZCT	04055Z	AL7466	-8979.24120	-0.000	-0.052
			0.005	0.003	0.01
GROUP: ID:62	RMS:0.015	FLOAT	Variance:1.40	Duration:514 m	Day
DXCT	ZEFR	04055Z	-47039.13600	-0.000	-0.029
			0.009	0.006	0.00
DYCT	ZEFR	04055Z	-3626.52890	-0.001	-0.096
			0.008	0.006	0.01
DZCT	ZEFR	04055Z	4844.90680	0.001	0.193
			0.005	0.003	0.01
GROUP: ID:63	RMS:0.013	FLOAT	Variance:1.30	Duration:514 m	Day
DXCT	ZEFR	BKVL	-29816.97050	0.001	0.128
			0.009	0.006	0.02
DYCT	ZEFR	BKVL	9052.69970	0.001	0.249
			0.008	0.006	0.04
DZCT	ZEFR	BKVL	24010.79050	0.006	1.872
			0.005	0.003	0.15
GROUP: ID:64	RMS:0.013	FLOAT	Variance:1.30	Duration:652 m	Day
DXCT	ZEFR	04055Y	-5275.82720	-0.001	-0.102
			0.008	0.006	0.05
DYCT	ZEFR	04055Y	4342.93600	-0.001	-0.142
			0.008	0.005	0.07
DZCT	ZEFR	04055Y	9359.86390	-0.006	-2.097
			0.004	0.003	0.54
GROUP: ID:65	RMS:0.014	FLOAT	Variance:1.30	Duration:514 m	Day
DXCT	04055Z	04055Y	41763.30720	0.001	0.123
			0.009	0.006	0.02
DYCT	04055Z	04055Y	7969.47250	0.000	0.058
			0.008	0.006	0.01
DZCT	04055Z	04055Y	4514.95160	0.002	0.744
			0.005	0.003	0.06
GROUP: ID:66	RMS:0.012	FLOAT	Variance:1.30	Duration:514 m	Day
DXCT	BKVL	04055Y	24541.13870	-0.000	-0.029
			0.009	0.006	0.01
DYCT	BKVL	04055Y	-4709.75020	0.001	0.102
			0.008	0.006	0.02
DZCT	BKVL	04055Y	-14650.93550	0.004	1.303
			0.005	0.003	0.15
GROUP: ID:67	RMS:0.005	Ratio:20.52	Variance:3.20	Duration:16 m	Day
DXCT	BKVL	04055A	-3485.11770	-0.006	-0.844
			0.009	0.007	1.66
DYCT	BKVL	04055A	-317.97730	0.002	0.294
			0.008	0.006	0.48

Residuals (critical value = 3.465, N,E,Up for 3D):
 NOTE: Observation values shown are reduced to mark-to-mark.

TYPE AT	FROM	TO	OBSERVATION STD DEV	RESIDUAL STD DEV	STD RES PPM
DZCT	BKVL	04055A	256.26000 0.006	-0.004 0.005	-0.853 1.22
GROUP: ID:68 RMS:0.008 Ratio:14.07 Variance:4.90 Duration:14 m Day					
DXCT	BKVL	04055A	-3485.11440 0.009	0.006 0.006	1.076 1.83
DYCT	BKVL	04055A	-317.97600 0.008	-0.002 0.005	-0.323 0.50
DZCT	BKVL	04055A	256.24560 0.004	0.003 0.002	1.887 0.96
GROUP: ID:69 RMS:0.008 Ratio:14.41 Variance:6.00 Duration:16 m Day					
DXCT	BKVL	04055X	1177.10290 0.009	-0.000 0.000	-0.000 0.00*
DYCT	BKVL	04055X	249.60240 0.008	-0.000 0.000	-0.000 0.00*
DZCT	BKVL	04055X	170.57810 0.005	0.000 0.000	0.000 0.00*
GROUP: ID:70 RMS:0.003 Ratio:32.18 Variance:0.80 Duration:20 m Day					
DXCT	AL7876	ZEFR	-389.26630 0.008	0.001 0.006	0.207 2.86
DYCT	AL7876	ZEFR	-113.27700 0.008	-0.001 0.005	-0.245 3.17
DZCT	AL7876	ZEFR	-106.68550 0.004	0.003 0.003	1.130 7.27
GROUP: ID:71 RMS:0.006 Ratio:42.32 Variance:2.70 Duration:19 m Day					
DXCT	ZEFR	04055I	-1399.69370 0.008	0.001 0.006	0.252 0.75
DYCT	ZEFR	04055I	-769.04010 0.008	0.001 0.005	0.157 0.44
DZCT	ZEFR	04055I	-1068.30800 0.004	0.008 0.002	3.486 4.10
GROUP: ID:72 RMS:0.010 Ratio:23.69 Variance:8.30 Duration:16 m Day					
DXCT	ZEFR	04055I	-1399.69030 0.009	-0.001 0.007	-0.146 0.51
DYCT	ZEFR	04055I	-769.05480 0.008	-0.001 0.006	-0.089 0.27
DZCT	ZEFR	04055I	-1068.29720 0.006	-0.010 0.005	-2.319 5.45
GROUP: ID:73 RMS:0.005 Ratio:23.80 Variance:2.00 Duration:20 m Day					
DXCT	AL7876	ZEFR	-389.26830 0.008	-0.001 0.006	-0.205 2.92
DYCT	AL7876	ZEFR	-113.28170 0.008	0.001 0.005	0.236 3.09
DZCT	AL7876	ZEFR	-106.68040 0.004	-0.003 0.003	-1.110 7.69



 S T A T I S T I C S S U M M A R Y

Residual Critical Value Type	Tau Max
Residual Critical Value	3.4654
Number of Flagged Residuals	6
Convergence Criterion	0.0010
Final Iteration Counter Value	2
Confidence Level Used	95.0000
Estimated Variance Factor	1.0451
Number of Degrees of Freedom	48

 Chi-Square Test on the Variance Factor:

7.2681e-01 < 1.0000 < 1.6312e+00 ?

THE TEST PASSES

 NOTE: All confidence regions were computed using the following factors:

Variance factor used	=	1.0451
1-D expansion factor	=	1.9600
2-D expansion factor	=	2.4477

Note that, for relative confidence regions, precisions are computed from the ratio of the major semi-axis and the spatial distance between the two stations.

2-D and 1-D Station Confidence Regions (95.000 and 95.000 percent):

STATION	MAJOR SEMI-AXIS	AZ	MINOR SEMI-AXIS	VERTICAL
04055A	0.013	175	0.013	0.012
04055B	0.018	116	0.018	0.017
04055C	0.018	64	0.018	0.017
04055D	0.018	15	0.018	0.016
04055E	0.018	61	0.018	0.017
04055F	0.018	115	0.018	0.020
04055G	0.018	56	0.018	0.018
04055H	0.018	99	0.018	0.017
04055I	0.018	74	0.018	0.016
04055X	0.018	174	0.018	0.016
04055Y	0.013	93	0.013	0.011
04055Z	0.013	92	0.013	0.011
AL7030	0.019	168	0.018	0.017
AL7347	0.018	7	0.018	0.018
AL7466	0.018	105	0.018	0.016
AL7876	0.018	93	0.018	0.015
ZEFR	0.013	93	0.013	0.011

Input file: C:\projects\04055\adjust\04055.iob
 Output file: C:\projects\04055\adjust\04055.lst
 Options file: C:\Program Files\Microsearch\GeoLab\default.gpj

Geoid File: C:\geoids\geoid03\g2003u07.gsp

PARAMETERS		OBSERVATIONS	
Description	Number	Description	Number
No. of Stations	18	Directions	0
Coord Parameters	42	Distances	0
Free Latitudes	14	Azimuths	0
Free Longitudes	14	Vertical Angles	0
Free Heights	14	Zenithal Angles	0
Fixed Coordinates	12	Angles	0
Astro. Latitudes	0	Heights	0
Astro. Longitudes	0	Height Differences	0
Geoid Records	0	Auxiliary Params.	0
All Aux. Pars.	0	2-D Coords.	0
Direction Pars.	0	2-D Coord. Diffs.	0
Scale Parameters	0	3-D Coords.	0
Constant Pars.	0	3-D Coord. Diffs.	99
Rotation Pars.	0		
Translation Pars.	0		
-----		-----	
Total Parameters	42	Total Observations	99
Degrees of Freedom =		57	

SUMMARY OF SELECTED OPTIONS

OPTION	SELECTION
Computation Mode	Adjustment
Maximum Iterations	31
Convergence Criterion	0.00100
Angular Misclosure Limit Factor	2.00
Linear Misclosure Limit Factor	2.00
Residual Rejection Criterion	Tau Max
Confidence Region Types	1D 2D Station
Variance Factor (VF) Known	Yes
Scale Covariance Matrix With VF	Yes
Scale Residual Variances With VF	Yes
Force Convergence in Max Iters	No
Distances Contribute To Heights	No
Compute Full Inverse	Yes
Optimize Band Width	Yes

=====
Microsearch GeoLab, V2001.9.20.0 04055 WGS 84 UNITS: m,DMS Page 0002
=====
Generate Initial Coordinates | Yes
Re-Transform Obs After 1st Pass | Yes
Geoid Interpolation Method | Bi-Quadratic

Input Station Data:

FFF STATION	ELIP-LATITUDE	ELIP-LONGITUDE	ELIP-HEIGHT
	ASTRO-LATITUDE	ASTRO-LONGITUDE	ORTHO-HEIGHT
	N/S DEFLECTION	N/S DEFLECTION	GEOID-HEIGHT
000 04055A	N 28 28 35.30849	W 82 29 21.74089	-12.750
	N 28 28 40.80849	W 82 29 18.69202	13.583
	0 0 5.50	0 0 2.68	-26.333
000 04055B	N 28 26 25.13623	W 82 11 23.85698	1.681
	N 28 26 27.57623	W 82 11 21.04797	28.313
	0 0 2.44	0 0 2.47	-26.632
000 04055C	N 28 25 20.31933	W 82 38 43.05473	-22.308
	N 28 25 25.55933	W 82 38 40.88295	3.752
	0 0 5.24	0 0 1.91	-26.060
000 04055D	N 28 24 12.93518	W 82 18 42.32476	39.879
	N 28 24 17.69518	W 82 18 38.99377	66.276
	0 0 4.76	0 0 2.93	-26.397
000 04055E	N 28 22 25.61656	W 82 3 19.18973	-5.176
	N 28 22 27.45656	W 82 3 17.03031	21.511
	0 0 1.84	0 0 1.90	-26.687
000 04055F	N 28 19 31.96202	W 82 30 6.57993	-8.444
	N 28 19 38.16202	W 82 30 4.26245	17.453
	0 0 6.20	0 0 2.04	-25.897
000 04055G	N 28 18 36.99097	W 82 42 4.01522	-22.065
	N 28 18 43.03097	W 82 42 1.15286	3.587
	0 0 6.04	0 0 2.52	-25.652
000 04055H	N 28 15 47.30222	W 82 22 44.47202	-5.751
	N 28 15 53.37222	W 82 22 40.39610	20.098
	0 0 6.07	0 0 3.59	-25.849
000 04055I	N 28 13 0.04164	W 82 10 47.34702	-3.296
	N 28 13 4.86164	W 82 10 41.05989	22.847
	0 0 4.82	0 0 5.54	-26.143
000 04055X	N 28 28 32.08672	W 82 26 29.11904	-2.231
	N 28 28 37.24672	W 82 26 25.62652	24.168
	0 0 5.16	0 0 3.07	-26.399
000 04055Y	N 28 19 24.40155	W 82 12 42.80158	8.382
	N 28 19 29.45155	W 82 12 38.03039	34.733
	0 0 5.05	0 0 4.20	-26.352
000 04055Z	N 28 16 38.35807	W 82 38 40.77375	-21.761
	N 28 16 44.85807	W 82 38 38.49138	3.844
	0 0 6.50	0 0 2.01	-25.605
111 AL7030	N 28 26 5.49263	W 82 18 9.68487	41.928
	N 28 26 9.54263	W 82 18 6.75091	68.413
	0 0 4.05	0 0 2.58	-26.485
001 AL7347	N 28 25 23.10194	W 82 38 41.45791	-20.738
	N 28 25 28.33194	W 82 38 39.29749	5.325
	0 0 5.23	0 0 1.90	-26.062
001 AL7466	N 28 11 7.32356	W 82 44 23.44662	-20.585
	N 28 11 12.62356	W 82 44 20.80317	4.627
	0 0 5.30	0 0 2.33	-25.212
111 AL7876	N 28 13 43.28435	W 82 9 37.96195	-1.579
	N 28 13 47.72435	W 82 9 31.86707	24.645
	0 0 4.44	0 0 5.37	-26.224

Input Station Data:

FFF STATION	ELIP-LATITUDE		ELIP-LONGITUDE		ELIP-HEIGHT
	ASTRO-LATITUDE		ASTRO-LONGITUDE		ORTHO-HEIGHT
	N/S DEFLECTION		N/S DEFLECTION		GEOID-HEIGHT
110 BKVL	N 28 28	25.66910	W 82 27	13.19472	-5.030
	N 28 28	30.89910	W 82 27	9.62262	21.345
	0 0	5.23	0 0	3.14	-26.375
110 ZEFR	N 28 13	39.32227	W 82 9	52.67214	0.030
	N 28 13	43.82227	W 82 9	46.54327	26.241
	0 0	4.50	0 0	5.40	-26.211

Misclosures (pass 1):

NOTE: Observation values shown are reduced to mark-to-mark.

TYPE AT	FROM	TO	OBSERVATION	STD.DEV.	MISC
GROUP: ID:32	RMS:0.014	FLOAT	Variance:1.30	Duration:514	m Day
DXCT	04055Z	BKVL	17222.169	0.007	0.687
DYCT	04055Z	BKVL	12679.224	0.008	-5.294
DZCT	04055Z	BKVL	19165.889	0.007	0.318
GROUP: ID:39	RMS:0.011	Ratio:20.28	Variance:1.00	Duration:20	m Day
DXCT	04055Y	04055E	14841.063	0.007	-0.106
DYCT	04055Y	04055E	4733.357	0.010	3.274
DZCT	04055Y	04055E	4902.133	0.008	1.067
GROUP: ID:40	RMS:0.014	Ratio:9.80	Variance:1.60	Duration:19	m Day:
DXCT	04055Y	04055E	14841.060	0.007	-0.102
DYCT	04055Y	04055E	4733.338	0.008	3.292
DZCT	04055Y	04055E	4902.136	0.007	1.064
GROUP: ID:41	RMS:0.010	Ratio:14.01	Variance:0.80	Duration:19	m Day
DXCT	04055Y	04055H	-15823.840	0.007	0.304
DYCT	04055Y	04055H	-5321.457	0.008	-3.326
DZCT	04055Y	04055H	-5891.559	0.008	-0.001
GROUP: ID:42	RMS:0.011	Ratio:15.40	Variance:1.00	Duration:20	m Day
DXCT	04055Y	04055H	-15823.848	0.007	0.312
DYCT	04055Y	04055H	-5321.453	0.010	-3.330
DZCT	04055Y	04055H	-5891.554	0.008	-0.005
GROUP: ID:43	RMS:0.013	Ratio:13.76	Variance:1.40	Duration:19	m Day
DXCT	04055Y	AL7030	-9606.132	0.007	0.646
DYCT	04055Y	AL7030	4592.284	0.008	-5.217
DZCT	04055Y	AL7030	10879.236	0.010	0.385
GROUP: ID:44	RMS:0.017	Ratio:10.75	Variance:2.40	Duration:20	m Day
DXCT	04055Y	AL7030	-9606.131	0.007	0.645
DYCT	04055Y	AL7030	4592.252	0.008	-5.186
DZCT	04055Y	AL7030	10879.224	0.008	0.397
GROUP: ID:45	RMS:0.010	Ratio:20.34	Variance:0.90	Duration:18	m Day
DXCT	04055Y	04055D	-10265.236	0.007	-0.085
DYCT	04055Y	04055D	2841.127	0.008	-5.461
DZCT	04055Y	04055D	7826.433	0.008	4.686
GROUP: ID:46	RMS:0.014	Ratio:8.38	Variance:1.60	Duration:21	m Day:
DXCT	04055Y	04055D	-10265.235	0.007	-0.086
DYCT	04055Y	04055D	2841.099	0.008	-5.432
DZCT	04055Y	04055D	7826.432	0.008	4.687
GROUP: ID:47	RMS:0.009	Ratio:12.73	Variance:0.90	Duration:20	m Day
DXCT	04055Y	04055B	1292.132	0.007	1.041
DYCT	04055Y	04055B	6403.636	0.009	-6.266
DZCT	04055Y	04055B	11390.057	0.008	2.162
GROUP: ID:48	RMS:0.011	Ratio:36.35	Variance:0.80	Duration:19	m Day
DXCT	04055Y	04055B	1292.137	0.007	1.036
DYCT	04055Y	04055B	6403.675	0.008	-6.305
DZCT	04055Y	04055B	11390.038	0.007	2.182
GROUP: ID:49	RMS:0.015	Ratio:10.24	Variance:1.20	Duration:15	m Day
DXCT	04055Z	AL7466	-8654.662	0.007	1.187
DYCT	04055Z	AL7466	-5966.053	0.008	-4.681
DZCT	04055Z	AL7466	-8979.235	0.007	1.413
GROUP: ID:50	RMS:0.019	Ratio:66.26	Variance:1.80	Duration:16	m Day

Misclosures (pass 1):

NOTE: Observation values shown are reduced to mark-to-mark.

TYPE AT	FROM	TO	OBSERVATION	STD.DEV.	MISC
DXCT	04055Z	04055G	-5715.126	0.007	1.587
DYCT	04055Z	04055G	1016.376	0.010	-5.482
DZCT	04055Z	04055G	3213.611	0.008	1.972
GROUP: ID:51	RMS:0.013	Ratio:14.86	Variance:1.30	Duration:14 m	Day
DXCT	04055Z	04055G	-5715.135	0.007	1.595
DYCT	04055Z	04055G	1016.405	0.010	-5.511
DZCT	04055Z	04055G	3213.617	0.008	1.967
GROUP: ID:52	RMS:0.015	Ratio:19.70	Variance:1.20	Duration:19 m	Day
DXCT	04055Z	04055C	-1039.369	0.007	0.911
DYCT	04055Z	04055C	7561.755	0.009	-1.879
DZCT	04055Z	04055C	14138.868	0.007	2.096
GROUP: ID:53	RMS:0.012	Ratio:24.41	Variance:1.20	Duration:15 m	Day
DXCT	04055Z	04055C	-1039.364	0.007	0.906
DYCT	04055Z	04055C	7561.772	0.009	-1.896
DZCT	04055Z	04055C	14138.863	0.008	2.101
GROUP: ID:54	RMS:0.014	Ratio:11.42	Variance:1.50	Duration:15 m	Day
DXCT	04055Z	AL7347	-1001.306	0.007	0.906
DYCT	04055Z	AL7347	7607.649	0.011	-3.142
DZCT	04055Z	AL7347	14212.848	0.008	4.201
GROUP: ID:55	RMS:0.015	Ratio:9.30	Variance:1.50	Duration:16 m	Day:
DXCT	04055Z	AL7347	-1001.313	0.007	0.913
DYCT	04055Z	AL7347	7607.664	0.009	-3.158
DZCT	04055Z	AL7347	14212.841	0.008	4.207
GROUP: ID:58	RMS:0.018	Ratio:9.18	Variance:1.90	Duration:16 m	Day:
DXCT	04055Z	04055F	13566.357	0.008	-0.028
DYCT	04055Z	04055F	4311.416	0.009	0.384
DZCT	04055Z	04055F	4712.312	0.008	-0.523
GROUP: ID:59	RMS:0.017	Ratio:21.30	Variance:1.80	Duration:17 m	Day
DXCT	04055Z	04055F	13566.354	0.008	-0.025
DYCT	04055Z	04055F	4311.403	0.014	0.397
DZCT	04055Z	04055F	4712.303	0.009	-0.514
GROUP: ID:61	RMS:0.010	Ratio:30.46	Variance:0.70	Duration:16 m	Day
DXCT	04055Z	AL7466	-8654.665	0.007	1.189
DYCT	04055Z	AL7466	-5966.058	0.008	-4.677
DZCT	04055Z	AL7466	-8979.241	0.007	1.419
GROUP: ID:62	RMS:0.015	FLOAT	Variance:1.40	Duration:514 m	Day
DXCT	ZEFR	04055Z	-47039.136	0.007	-0.691
DYCT	ZEFR	04055Z	-3626.529	0.008	5.294
DZCT	ZEFR	04055Z	4844.907	0.007	-0.318
GROUP: ID:64	RMS:0.013	FLOAT	Variance:1.30	Duration:652 m	Day
DXCT	ZEFR	04055Y	-5275.827	0.007	-0.653
DYCT	ZEFR	04055Y	4342.936	0.007	5.162
DZCT	ZEFR	04055Y	9359.864	0.007	-0.383
GROUP: ID:65	RMS:0.014	FLOAT	Variance:1.30	Duration:514 m	Day
DXCT	04055Z	04055Y	41763.307	0.007	0.039
DYCT	04055Z	04055Y	7969.472	0.008	-0.139
DZCT	04055Z	04055Y	4514.952	0.007	-0.060
GROUP: ID:66	RMS:0.012	FLOAT	Variance:1.30	Duration:514 m	Day
DXCT	BKVL	04055Y	24541.139	0.007	-0.649

Misclosures (pass 1):

NOTE: Observation values shown are reduced to mark-to-mark.

TYPE AT	FROM	TO	OBSERVATION	STD.DEV.	MISC
DYCT	BKVL	04055Y	-4709.750	0.008	5.154
DZCT	BKVL	04055Y	-14650.935	0.007	-0.379
GROUP: ID:67	RMS:0.005	Ratio:20.52	Variance:3.20	Duration:16	m Day
DXCT	BKVL	04055A	-3485.118	0.007	-0.869
DYCT	BKVL	04055A	-317.977	0.009	6.835
DZCT	BKVL	04055A	256.260	0.008	0.911
GROUP: ID:68	RMS:0.008	Ratio:14.07	Variance:4.90	Duration:14	m Day
DXCT	BKVL	04055A	-3485.114	0.007	-0.873
DYCT	BKVL	04055A	-317.976	0.007	6.834
DZCT	BKVL	04055A	256.246	0.008	0.925
GROUP: ID:69	RMS:0.008	Ratio:14.41	Variance:6.00	Duration:16	m Day
DXCT	BKVL	04055X	1177.103	0.007	-0.612
DYCT	BKVL	04055X	249.602	0.008	-1.081
DZCT	BKVL	04055X	170.578	0.007	4.424
GROUP: ID:70	RMS:0.003	Ratio:32.18	Variance:0.80	Duration:20	m Day
DXCT	AL7876	ZEFR	-389.266	0.007	-0.000
DYCT	AL7876	ZEFR	-113.277	0.007	0.030
DZCT	AL7876	ZEFR	-106.686	0.007	-0.017
GROUP: ID:71	RMS:0.006	Ratio:42.32	Variance:2.70	Duration:19	m Day
DXCT	ZEFR	04055I	-1399.694	0.007	0.274
DYCT	ZEFR	04055I	-769.040	0.007	2.402
DZCT	ZEFR	04055I	-1068.308	0.007	1.265
GROUP: ID:72	RMS:0.010	Ratio:23.69	Variance:8.30	Duration:16	m Day
DXCT	ZEFR	04055I	-1399.690	0.007	0.271
DYCT	ZEFR	04055I	-769.055	0.008	2.416
DZCT	ZEFR	04055I	-1068.297	0.007	1.254
GROUP: ID:73	RMS:0.005	Ratio:23.80	Variance:2.00	Duration:20	m Day
DXCT	AL7876	ZEFR	-389.268	0.007	0.002
DYCT	AL7876	ZEFR	-113.282	0.007	0.035
DZCT	AL7876	ZEFR	-106.680	0.007	-0.022

Solution (pass 1):

NAME	TYPE		OLD VALUE		CORRECTION		UPDATED VALUE
04055A	ELAT	N 28 28	35.30849	0 0	-0.13291	N 28 28	35.17558
04055A	ELON	W 82 29	21.74089	0 0	-0.00110	W 82 29	21.74199
04055A	EHYT		-12.750		5.651		-7.099
04055B	ELAT	N 28 26	25.13623	0 0	-0.03324	N 28 26	25.10299
04055B	ELON	W 82 11	23.85698	0 0	-0.00860	W 82 11	23.86558
04055B	EHYT		1.681		-1.850		-0.169
04055C	ELAT	N 28 25	20.31933	0 0	-0.10270	N 28 25	20.21663
04055C	ELON	W 82 38	43.05473	0 0	-0.02406	W 82 38	43.07879
04055C	EHYT		-22.308		2.130		-20.178
04055D	ELAT	N 28 24	12.93518	0 0	-0.12028	N 28 24	12.81490
04055D	ELON	W 82 18	42.32476	0 0	0.02806	W 82 18	42.29670
04055D	EHYT		39.879		-2.178		37.701
04055E	ELAT	N 28 22	25.61656	0 0	-0.15039	N 28 22	25.46617
04055E	ELON	W 82 03	19.18973	0 0	-0.01556	W 82 03	19.20529
04055E	EHYT		-5.176		7.159		1.983
04055F	ELAT	N 28 19	31.96202	0 0	-0.06442	N 28 19	31.89760
04055F	ELON	W 82 30	6.57993	0 0	-0.00125	W 82 30	6.58118
04055F	EHYT		-8.444		5.467		-2.977
04055G	ELAT	N 28 18	36.99097	0 0	-0.04240	N 28 18	36.94857
04055G	ELON	W 82 42	4.01522	0 0	-0.03195	W 82 42	4.04717
04055G	EHYT		-22.065		-1.031		-23.096
04055H	ELAT	N 28 15	47.30222	0 0	-0.01777	N 28 15	47.28445
04055H	ELON	W 82 22	44.47202	0 0	0.00338	W 82 22	44.46864
04055H	EHYT		-5.751		1.856		-3.895
04055I	ELAT	N 28 13	0.04164	0 0	-0.07213	N 28 12	59.96951
04055I	ELON	W 82 10	47.34702	0 0	-0.02191	W 82 10	47.36893
04055I	EHYT		-3.296		1.509		-1.787
04055X	ELAT	N 28 28	32.08672	0 0	-0.11098	N 28 28	31.97574
04055X	ELON	W 82 26	29.11904	0 0	0.02752	W 82 26	29.09152
04055X	EHYT		-2.231		-2.948		-5.179
04055Y	ELAT	N 28 19	24.40155	0 0	-0.06938	N 28 19	24.33217
04055Y	ELON	W 82 12	42.80158	0 0	-0.00215	W 82 12	42.80373
04055Y	EHYT		8.382		4.793		13.175
04055Z	ELAT	N 28 16	38.35807	0 0	-0.07310	N 28 16	38.28497
04055Z	ELON	W 82 38	40.77375	0 0	0.00016	W 82 38	40.77359
04055Z	EHYT		-21.761		4.882		-16.879
AL7347	ELAT	N 28 25	23.10194	0 0	-0.14343	N 28 25	22.95851
AL7347	ELON	W 82 38	41.45791	0 0	-0.01814	W 82 38	41.47605
AL7466	ELAT	N 28 11	7.32356	0 0	-0.03987	N 28 11	7.28369
AL7466	ELON	W 82 44	23.44662	0 0	-0.02105	W 82 44	23.46767
BKVL	EHYT		-5.030		0.033		-4.997
ZEFR	EHYT		0.030		0.035		0.065

CODE	FFF	STATION	LATITUDE		LONGITUDE		ELIP-HEIGHT	
			STD DEV		STD DEV		STD DEV	
PLH	000	04055A	N 28 28	35.17558	W 82 29	21.74199	-7.099 m	0
				0.006		0.006	0.009	
PLH	000	04055B	N 28 26	25.10299	W 82 11	23.86558	-0.169 m	0
				0.007		0.007	0.009	
PLH	000	04055C	N 28 25	20.21663	W 82 38	43.07879	-20.178 m	0
				0.008		0.008	0.009	
PLH	000	04055D	N 28 24	12.81490	W 82 18	42.29670	37.701 m	0
				0.007		0.007	0.008	
PLH	000	04055E	N 28 22	25.46617	W 82 3	19.20529	1.983 m	0
				0.007		0.007	0.009	
PLH	000	04055F	N 28 19	31.89760	W 82 30	6.58118	-2.977 m	0
				0.008		0.008	0.010	
PLH	000	04055G	N 28 18	36.94857	W 82 42	4.04717	-23.096 m	0
				0.008		0.008	0.009	
PLH	000	04055H	N 28 15	47.28445	W 82 22	44.46864	-3.895 m	0
				0.007		0.007	0.009	
PLH	000	04055I	N 28 12	59.96951	W 82 10	47.36893	-1.787 m	0
				0.006		0.006	0.008	
PLH	000	04055X	N 28 28	31.97574	W 82 26	29.09152	-5.179 m	0
				0.008		0.008	0.011	
PLH	000	04055Y	N 28 19	24.33217	W 82 12	42.80373	13.175 m	0
				0.004		0.004	0.005	
PLH	000	04055Z	N 28 16	38.28497	W 82 38	40.77359	-16.879 m	0
				0.005		0.005	0.004	
PLH	111	AL7030	N 28 26	5.49263	W 82 18	9.68487	41.928 m	0
				0.000		0.000	0.000	
PLH	001	AL7347	N 28 25	22.95851	W 82 38	41.47605	-20.738 m	0
				0.008		0.008	0.000	
PLH	001	AL7466	N 28 11	7.28369	W 82 44	23.46767	-20.585 m	0
				0.008		0.008	0.000	
PLH	111	AL7876	N 28 13	43.28435	W 82 9	37.96195	-1.579 m	0
				0.000		0.000	0.000	
PLH	110	BKVL	N 28 28	25.66910	W 82 27	13.19472	-4.997 m	0
				0.000		0.000	0.006	
PLH	110	ZEFR	N 28 13	39.32227	W 82 9	52.67214	0.065 m	0
				0.000		0.000	0.004	

=====
 04055
 Microsearch GeoLab, V2001.9.20.0 WGS 84 UNITS: m,DMS Page 0010
 =====
 Adjusted PLO Coordinates:

CODE	FFF	STATION	LATITUDE		LONGITUDE		O-HEIGHT	
			STD DEV		STD DEV		STD DEV	
PLO	000	04055A	N 28 28	35.17558	W 82 29	21.74199	19.234 m	0
				0.006		0.006	0.009	
PLO	000	04055B	N 28 26	25.10299	W 82 11	23.86558	26.463 m	0
				0.007		0.007	0.009	
PLO	000	04055C	N 28 25	20.21663	W 82 38	43.07879	5.881 m	0
				0.008		0.008	0.009	
PLO	000	04055D	N 28 24	12.81490	W 82 18	42.29670	64.099 m	0
				0.007		0.007	0.008	
PLO	000	04055E	N 28 22	25.46617	W 82 3	19.20529	28.670 m	0
				0.007		0.007	0.009	
PLO	000	04055F	N 28 19	31.89760	W 82 30	6.58118	22.920 m	0
				0.008		0.008	0.010	
PLO	000	04055G	N 28 18	36.94857	W 82 42	4.04717	2.556 m	0
				0.008		0.008	0.009	
PLO	000	04055H	N 28 15	47.28445	W 82 22	44.46864	21.954 m	0
				0.007		0.007	0.009	
PLO	000	04055I	N 28 12	59.96951	W 82 10	47.36893	24.356 m	0
				0.006		0.006	0.008	
PLO	000	04055X	N 28 28	31.97574	W 82 26	29.09152	21.220 m	0
				0.008		0.008	0.011	
PLO	000	04055Y	N 28 19	24.33217	W 82 12	42.80373	39.526 m	0
				0.004		0.004	0.005	
PLO	000	04055Z	N 28 16	38.28497	W 82 38	40.77359	8.726 m	0
				0.005		0.005	0.004	
PLO	111	AL7030	N 28 26	5.49263	W 82 18	9.68487	68.413 m	0
				0.000		0.000	0.000	
PLO	001	AL7347	N 28 25	22.95851	W 82 38	41.47605	5.325 m	0
				0.008		0.008	0.000	
PLO	001	AL7466	N 28 11	7.28369	W 82 44	23.46767	4.627 m	0
				0.008		0.008	0.000	
PLO	111	AL7876	N 28 13	43.28435	W 82 9	37.96195	24.645 m	0
				0.000		0.000	0.000	
PLO	110	BKVL	N 28 28	25.66910	W 82 27	13.19472	21.378 m	0
				0.000		0.000	0.006	
PLO	110	ZEFR	N 28 13	39.32227	W 82 9	52.67214	26.276 m	0
				0.000		0.000	0.004	

Adjusted XYZ Coordinates:

CODE	FFF STATION	X-COORDINATE STD DEV	Y-COORDINATE STD DEV	Z-COORDINATE STD DEV	
XYZ	04055A	733379.224 0.006	-5562595.307 0.008	3023018.276 m 0.007	0
XYZ	04055B	762697.613 0.007	-5560583.432 0.008	3019501.131 m 0.007	0
XYZ	04055C	718602.805 0.008	-5567394.790 0.009	3017734.998 m 0.008	0
XYZ	04055D	751140.242 0.007	-5564145.977 0.008	3015937.519 m 0.007	0
XYZ	04055E	776246.539 0.007	-5562253.745 0.009	3013013.221 m 0.007	0
XYZ	04055F	733208.527 0.008	-5570645.141 0.010	3008308.438 m 0.008	0
XYZ	04055G	713927.041 0.008	-5573940.162 0.009	3006809.746 m 0.008	0
XYZ	04055H	745581.633 0.007	-5572308.546 0.008	3002219.530 m 0.007	0
XYZ	04055I	765281.619 0.006	-5572099.074 0.007	2997682.925 m 0.006	0
XYZ	04055X	738041.443 0.008	-5562027.729 0.010	3022932.601 m 0.009	0
XYZ	04055Y	761405.477 0.004	-5566987.091 0.005	3008111.086 m 0.004	0
XYZ	04055Z	719642.171 0.005	-5574956.553 0.004	3003596.132 m 0.005	0
XYZ	AL7030	751799.341 0.000	-5562394.832 0.000	3018990.313 m 0.000	0
XYZ	AL7347	718640.859 0.008	-5567348.873 0.004	3017808.966 m 0.007	0
XYZ	AL7466	710987.509 0.008	-5580922.614 0.004	2994616.896 m 0.007	0
XYZ	AL7876	767070.573 0.000	-5571216.750 0.000	2998857.914 m 0.000	0
XYZ	BKVL	736864.340 0.001	-5562277.331 0.005	3022762.023 m 0.003	0
XYZ	ZEFR	766681.311 0.001	-5571330.028 0.004	2998751.228 m 0.002	0

Geoid Values:

CODE	STATION	N/S DEFLECTION	E/W DEFLECTION	UNDULATION
GEOI	04055A	0 0 5.50	0 0 2.68	-26.333 m
GEOI	04055B	0 0 2.44	0 0 2.47	-26.632 m
GEOI	04055C	0 0 5.24	0 0 1.91	-26.060 m
GEOI	04055D	0 0 4.76	0 0 2.93	-26.397 m
GEOI	04055E	0 0 1.84	0 0 1.90	-26.687 m
GEOI	04055F	0 0 6.20	0 0 2.04	-25.897 m
GEOI	04055G	0 0 6.04	0 0 2.52	-25.652 m
GEOI	04055H	0 0 6.07	0 0 3.59	-25.849 m
GEOI	04055I	0 0 4.82	0 0 5.54	-26.143 m
GEOI	04055X	0 0 5.16	0 0 3.07	-26.399 m
GEOI	04055Y	0 0 5.05	0 0 4.20	-26.352 m
GEOI	04055Z	0 0 6.50	0 0 2.01	-25.605 m
GEOI	AL7030	0 0 4.05	0 0 2.58	-26.485 m
GEOI	AL7347	0 0 5.23	0 0 1.90	-26.062 m
GEOI	AL7466	0 0 5.30	0 0 2.33	-25.212 m
GEOI	AL7876	0 0 4.44	0 0 5.37	-26.224 m
GEOI	BKVL	0 0 5.23	0 0 3.14	-26.375 m
GEOI	ZEFR	0 0 4.50	0 0 5.40	-26.211 m

Residuals (critical value = 3.496, N,E,Up for 3D):
 NOTE: Observation values shown are reduced to mark-to-mark.

TYPE AT	FROM	TO	OBSERVATION STD DEV	RESIDUAL STD DEV	STD RES PPM
GROUP: ID:32 RMS:0.014 FLOAT Variance:1.30 Duration:514 m Day					
DXCT	04055Z	BKVL	17222.16900	0.001	0.189
			0.010	0.008	0.05
DYCT	04055Z	BKVL	12679.22350	-0.000	-0.047
			0.009	0.007	0.01
DZCT	04055Z	BKVL	19165.88880	0.003	0.709
			0.005	0.004	0.10
GROUP: ID:39 RMS:0.011 Ratio:20.28 Variance:1.00 Duration:20 m Day					
DXCT	04055Y	04055E	14841.06340	-0.003	-0.391
			0.011	0.008	0.19
DYCT	04055Y	04055E	4733.35670	-0.003	-0.480
			0.009	0.007	0.19
DZCT	04055Y	04055E	4902.13290	0.010	1.587
			0.008	0.006	0.62
GROUP: ID:40 RMS:0.014 Ratio:9.80 Variance:1.60 Duration:19 m Day:					
DXCT	04055Y	04055E	14841.05980	0.003	0.383
			0.010	0.007	0.16
DYCT	04055Y	04055E	4733.33820	0.003	0.467
			0.009	0.006	0.18
DZCT	04055Y	04055E	4902.13600	-0.007	-1.980
			0.006	0.004	0.43
GROUP: ID:41 RMS:0.010 Ratio:14.01 Variance:0.80 Duration:19 m Day					
DXCT	04055Y	04055H	-15823.84010	0.003	0.454
			0.010	0.007	0.18
DYCT	04055Y	04055H	-5321.45690	-0.004	-0.606
			0.009	0.006	0.21
DZCT	04055Y	04055H	-5891.55900	-0.001	-0.171
			0.006	0.003	0.03
GROUP: ID:42 RMS:0.011 Ratio:15.40 Variance:1.00 Duration:20 m Day					
DXCT	04055Y	04055H	-15823.84820	-0.003	-0.401
			0.011	0.008	0.18
DYCT	04055Y	04055H	-5321.45320	0.004	0.568
			0.009	0.007	0.21
DZCT	04055Y	04055H	-5891.55440	0.001	0.234
			0.008	0.006	0.08
GROUP: ID:43 RMS:0.013 Ratio:13.76 Variance:1.40 Duration:19 m Day					
DXCT	04055Y	AL7030	-9606.13210	-0.019	-1.784
			0.012	0.011	1.27
DYCT	04055Y	AL7030	4592.28370	-0.008	-0.991
			0.009	0.008	0.51
DZCT	04055Y	AL7030	10879.23620	0.017	7.779
			0.004	0.002	1.13
GROUP: ID:44 RMS:0.017 Ratio:10.75 Variance:2.40 Duration:20 m Day					
DXCT	04055Y	AL7030	-9606.13100	0.007	0.734
			0.010	0.009	0.44
DYCT	04055Y	AL7030	4592.25210	-0.005	-0.572
			0.009	0.008	0.30

04055

Microsearch GeoLab, V2001.9.20.0 WGS 84 UNITS: m,DMS Page 0014

Residuals (critical value = 3.496, N,E,Up for 3D):

NOTE: Observation values shown are reduced to mark-to-mark.

TYPE AT	FROM	TO	OBSERVATION STD DEV	RESIDUAL STD DEV	STD RES PPM
DZCT	04055Y	AL7030	10879.22360 0.006	-0.004 0.005	-0.875 0.29
GROUP: ID:45 RMS:0.010 Ratio:20.34 Variance:0.90 Duration:18 m Day					
DXCT	04055Y	04055D	-10265.23640 0.010	-0.007 0.007	-0.971 0.51
DYCT	04055Y	04055D	2841.12680 0.009	-0.001 0.006	-0.180 0.08
DZCT	04055Y	04055D	7826.43280 0.005	0.012 0.003	3.358 0.89
GROUP: ID:46 RMS:0.014 Ratio:8.38 Variance:1.60 Duration:21 m Day:					
DXCT	04055Y	04055D	-10265.23540 0.010	0.007 0.007	0.927 0.52
DYCT	04055Y	04055D	2841.09870 0.009	0.002 0.006	0.268 0.13
DZCT	04055Y	04055D	7826.43250 0.005	-0.013 0.004	-3.252 0.97
GROUP: ID:47 RMS:0.009 Ratio:12.73 Variance:0.90 Duration:20 m Day					
DXCT	04055Y	04055B	1292.13220 0.011	-0.000 0.008	-0.018 0.01
DYCT	04055Y	04055B	6403.63560 0.009	0.006 0.006	0.986 0.48
DZCT	04055Y	04055B	11390.05720 0.007	-0.026 0.005	-4.717 1.98
GROUP: ID:48 RMS:0.011 Ratio:36.35 Variance:0.80 Duration:19 m Day					
DXCT	04055Y	04055B	1292.13690 0.010	-0.001 0.007	-0.191 0.09
DYCT	04055Y	04055B	6403.67510 0.009	-0.004 0.006	-0.574 0.28
DZCT	04055Y	04055B	11390.03770 0.006	0.017 0.004	4.721 1.31
GROUP: ID:49 RMS:0.015 Ratio:10.24 Variance:1.20 Duration:15 m Day					
DXCT	04055Z	AL7466	-8654.66220 0.010	-0.004 0.008	-0.457 0.27
DYCT	04055Z	AL7466	-5966.05340 0.009	-0.002 0.007	-0.238 0.11
DZCT	04055Z	AL7466	-8979.23530 0.006	0.007 0.006	1.146 0.49
GROUP: ID:50 RMS:0.019 Ratio:66.26 Variance:1.80 Duration:16 m Day					
DXCT	04055Z	04055G	-5715.12620 0.011	0.010 0.008	1.262 1.51
DYCT	04055Z	04055G	1016.37590 0.009	-0.003 0.007	-0.402 0.40
DZCT	04055Z	04055G	3213.61140 0.008	-0.012 0.006	-2.047 1.80
GROUP: ID:51 RMS:0.013 Ratio:14.86 Variance:1.30 Duration:14 m Day					
DXCT	04055Z	04055G	-5715.13460	-0.009	-1.138

Residuals (critical value = 3.496, N,E,Up for 3D):
 NOTE: Observation values shown are reduced to mark-to-mark.

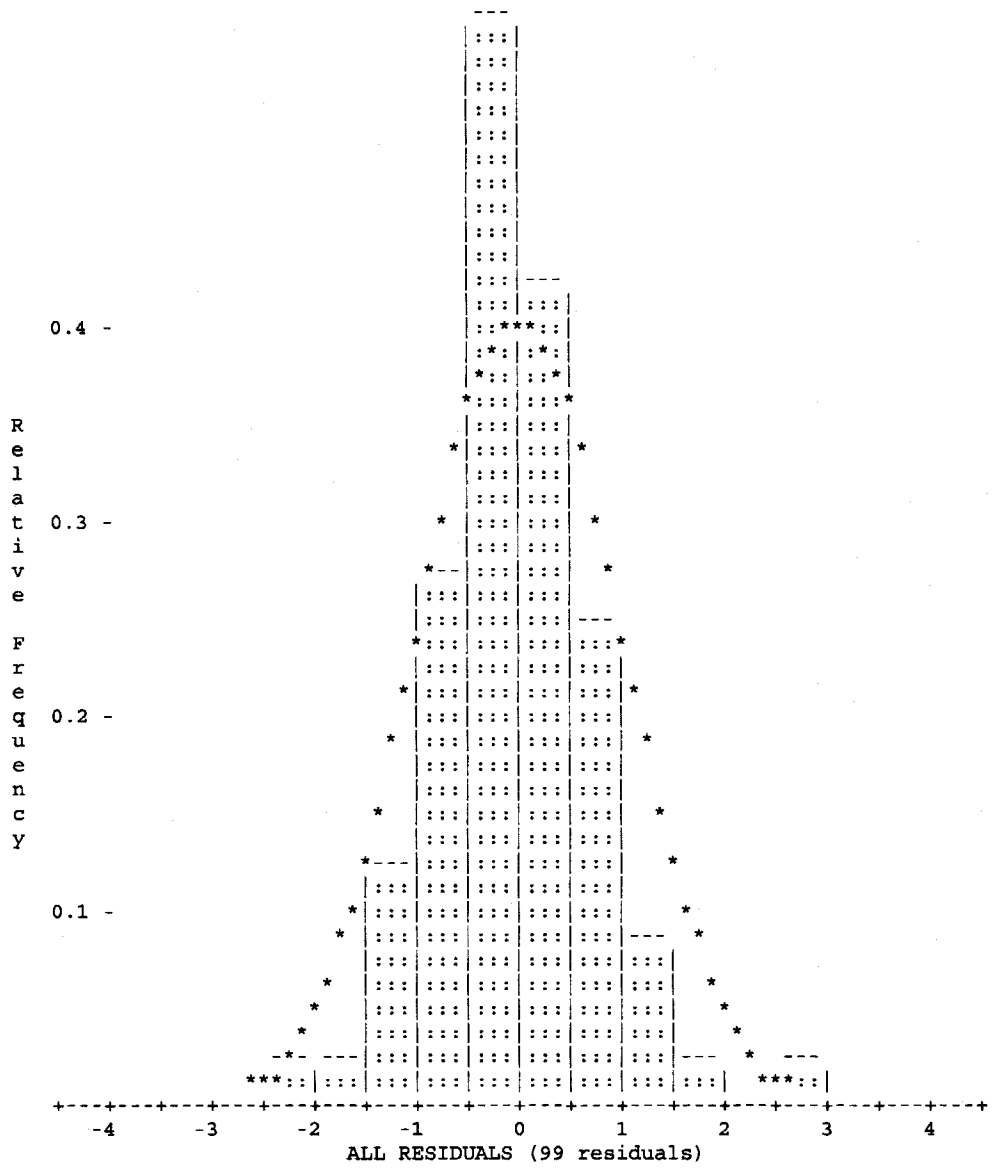
TYPE AT	FROM	TO	OBSERVATION STD DEV	RESIDUAL STD DEV	STD RES PPM
			0.011	0.008	1.35
DYCT	04055Z	04055G	1016.40500	0.002	0.294
			0.009	0.007	0.29
DZCT	04055Z	04055G	3213.61690	0.012	1.937
			0.009	0.006	1.78
GROUP: ID:52 RMS:0.015 Ratio:19.70 Variance:1.20 Duration:19 m Day					
DXCT	04055Z	04055C	-1039.36850	0.002	0.329
			0.010	0.007	0.14
DYCT	04055Z	04055C	7561.75520	0.003	0.501
			0.009	0.006	0.20
DZCT	04055Z	04055C	14138.86780	-0.007	-1.516
			0.007	0.005	0.45
GROUP: ID:53 RMS:0.012 Ratio:24.41 Variance:1.20 Duration:15 m Day					
DXCT	04055Z	04055C	-1039.36440	-0.002	-0.195
			0.011	0.008	0.10
DYCT	04055Z	04055C	7561.77210	-0.003	-0.470
			0.009	0.007	0.19
DZCT	04055Z	04055C	14138.86350	0.009	1.669
			0.007	0.005	0.56
GROUP: ID:54 RMS:0.014 Ratio:11.42 Variance:1.50 Duration:15 m Day					
DXCT	04055Z	AL7347	-1001.30610	0.003	0.312
			0.012	0.010	0.19
DYCT	04055Z	AL7347	7607.64890	-0.002	-0.279
			0.009	0.007	0.12
DZCT	04055Z	AL7347	14212.84780	-0.035	-3.602
			0.010	0.010	2.14
GROUP: ID:55 RMS:0.015 Ratio:9.30 Variance:1.50 Duration:16 m Day:					
DXCT	04055Z	AL7347	-1001.31350	0.001	0.118
			0.011	0.009	0.07
DYCT	04055Z	AL7347	7607.66450	0.003	0.491
			0.009	0.007	0.21
DZCT	04055Z	AL7347	14212.84130	-0.017	-2.671
			0.006	0.006	1.05
GROUP: ID:58 RMS:0.018 Ratio:9.18 Variance:1.90 Duration:16 m Day:					
DXCT	04055Z	04055F	13566.35700	-0.007	-0.914
			0.011	0.007	0.45
DYCT	04055Z	04055F	4311.41640	-0.002	-0.365
			0.009	0.006	0.15
DZCT	04055Z	04055F	4712.31200	0.001	0.497
			0.007	0.002	0.07
GROUP: ID:59 RMS:0.017 Ratio:21.30 Variance:1.80 Duration:17 m Day					
DXCT	04055Z	04055F	13566.35440	0.007	0.661
			0.014	0.011	0.48
DYCT	04055Z	04055F	4311.40320	0.002	0.248
			0.010	0.008	0.13
DZCT	04055Z	04055F	4712.30300	-0.006	-0.546
			0.013	0.011	0.40

Residuals (critical value = 3.496, N,E,Up for 3D):
 NOTE: Observation values shown are reduced to mark-to-mark.

TYPE AT	FROM	TO	OBSERVATION	RESIDUAL	STD RES
			STD DEV	STD DEV	PPM
GROUP: ID:61 RMS:0.010 Ratio:30.46 Variance:0.70 Duration:16 m Day					
DXCT	04055Z	AL7466	-8654.66460	0.003	0.425
			0.010	0.008	0.24
DYCT	04055Z	AL7466	-5966.05760	0.001	0.210
			0.009	0.006	0.10
DZCT	04055Z	AL7466	-8979.24120	0.006	1.204
			0.005	0.005	0.45
GROUP: ID:62 RMS:0.015 FLOAT Variance:1.40 Duration:514 m Day					
DXCT	ZEFR	04055Z	-47039.13600	-0.001	-0.112
			0.010	0.008	0.02
DYCT	ZEFR	04055Z	-3626.52890	-0.003	-0.432
			0.009	0.007	0.06
DZCT	ZEFR	04055Z	4844.90680	-0.005	-1.192
			0.005	0.005	0.11
GROUP: ID:63 RMS:0.013 FLOAT Variance:1.30 Duration:514 m Day					
DXCT	ZEFR	BKVL	-29816.97050	0.002	0.287
			0.010	0.008	0.06
DYCT	ZEFR	BKVL	9052.69970	-0.001	-0.075
			0.009	0.009	0.02
DZCT	ZEFR	BKVL	24010.79050	0.005	1.836
			0.005	0.003	0.12
GROUP: ID:64 RMS:0.013 FLOAT Variance:1.30 Duration:652 m Day					
DXCT	ZEFR	04055Y	-5275.82720	-0.004	-0.544
			0.009	0.008	0.37
DYCT	ZEFR	04055Y	4342.93600	-0.006	-0.816
			0.009	0.008	0.54
DZCT	ZEFR	04055Y	9359.86390	-0.005	-1.244
			0.005	0.004	0.40
GROUP: ID:65 RMS:0.014 FLOAT Variance:1.30 Duration:514 m Day					
DXCT	04055Z	04055Y	41763.30720	-0.002	-0.301
			0.010	0.008	0.05
DYCT	04055Z	04055Y	7969.47250	-0.003	-0.375
			0.009	0.007	0.06
DZCT	04055Z	04055Y	4514.95160	0.010	2.239
			0.005	0.005	0.24
GROUP: ID:66 RMS:0.012 FLOAT Variance:1.30 Duration:514 m Day					
DXCT	BKVL	04055Y	24541.13870	-0.006	-0.715
			0.010	0.008	0.19
DYCT	BKVL	04055Y	-4709.75020	-0.003	-0.369
			0.009	0.008	0.10
DZCT	BKVL	04055Y	-14650.93550	0.007	2.222
			0.005	0.003	0.25
GROUP: ID:67 RMS:0.005 Ratio:20.52 Variance:3.20 Duration:16 m Day					
DXCT	BKVL	04055A	-3485.11770	-0.006	-0.759
			0.010	0.008	1.66
DYCT	BKVL	04055A	-317.97730	0.002	0.265
			0.009	0.006	0.48
DZCT	BKVL	04055A	256.26000	-0.004	-0.767

Residuals (critical value = 3.496, N,E,Up for 3D):
 NOTE: Observation values shown are reduced to mark-to-mark.

TYPE AT	FROM	TO	OBSERVATION STD DEV	RESIDUAL STD DEV	STD RES PPM
			0.007	0.006	1.22
GROUP: ID:68	RMS:0.008	Ratio:14.07	Variance:4.90	Duration:14 m	Day
DXCT	BKVL	04055A	-3485.11440	0.006	0.967
			0.010	0.007	1.83
DYCT	BKVL	04055A	-317.97600	-0.002	-0.290
			0.009	0.006	0.50
DZCT	BKVL	04055A	256.24560	0.003	1.696
			0.004	0.002	0.96
GROUP: ID:69	RMS:0.008	Ratio:14.41	Variance:6.00	Duration:16 m	Day
DXCT	BKVL	04055X	1177.10290	0.000	0.000
			0.010	0.000	0.00*
DYCT	BKVL	04055X	249.60240	0.000	0.000
			0.009	0.000	0.00*
DZCT	BKVL	04055X	170.57810	0.000	0.000
			0.005	0.000	0.00*
GROUP: ID:70	RMS:0.003	Ratio:32.18	Variance:0.80	Duration:20 m	Day
DXCT	AL7876	ZEFR	-389.26630	-0.001	-0.099
			0.009	0.009	2.02
DYCT	AL7876	ZEFR	-113.27700	0.004	0.463
			0.009	0.008	9.30
DZCT	AL7876	ZEFR	-106.68550	0.001	0.277
			0.004	0.003	1.83
GROUP: ID:71	RMS:0.006	Ratio:42.32	Variance:2.70	Duration:19 m	Day
DXCT	ZEFR	04055I	-1399.69370	0.001	0.226
			0.009	0.006	0.75
DYCT	ZEFR	04055I	-769.04010	0.001	0.141
			0.009	0.006	0.44
DZCT	ZEFR	04055I	-1068.30800	0.008	3.133
			0.005	0.003	4.10
GROUP: ID:72	RMS:0.010	Ratio:23.69	Variance:8.30	Duration:16 m	Day
DXCT	ZEFR	04055I	-1399.69030	-0.001	-0.131
			0.010	0.007	0.51
DYCT	ZEFR	04055I	-769.05480	-0.001	-0.080
			0.009	0.006	0.27
DZCT	ZEFR	04055I	-1068.29720	-0.010	-2.085
			0.006	0.005	5.45
GROUP: ID:73	RMS:0.005	Ratio:23.80	Variance:2.00	Duration:20 m	Day
DXCT	AL7876	ZEFR	-389.26830	-0.003	-0.375
			0.009	0.009	7.79
DYCT	AL7876	ZEFR	-113.28170	0.007	0.770
			0.009	0.008	15.56
DZCT	AL7876	ZEFR	-106.68040	-0.006	-1.829
			0.004	0.003	13.14



 S T A T I S T I C S S U M M A R Y

Residual Critical Value Type	Tau Max
Residual Critical Value	3.4956
Number of Flagged Residuals	4
Convergence Criterion	0.0010
Final Iteration Counter Value	2
Confidence Level Used	95.0000
Estimated Variance Factor	1.2934
Number of Degrees of Freedom	57

 Chi-Square Test on the Variance Factor:

9.2443e-01 < 1.0000 < 1.9388e+00 ?

THE TEST PASSES

 NOTE: All confidence regions were computed using the following factors:

Variance factor used	=	1.2934
1-D expansion factor	=	1.9600
2-D expansion factor	=	2.4477

Note that, for relative confidence regions, precisions are computed from the ratio of the major semi-axis and the spatial distance between the two stations.

2-D and 1-D Station Confidence Regions (95.000 and 95.000 percent):

STATION	MAJOR SEMI-AXIS	AZ	MINOR SEMI-AXIS	VERTICAL
04055A	0.014	175	0.014	0.018
04055B	0.017	150	0.017	0.017
04055C	0.019	42	0.019	0.017
04055D	0.017	3	0.017	0.016
04055E	0.017	9	0.017	0.017
04055F	0.019	129	0.019	0.020
04055G	0.019	46	0.019	0.018
04055H	0.017	163	0.017	0.017
04055I	0.014	23	0.014	0.015
04055X	0.020	174	0.020	0.021
04055Y	0.009	167	0.009	0.010
04055Z	0.012	93	0.012	0.008
AL7347	0.019	3	0.019	0.000
AL7466	0.019	111	0.019	0.000
BKVL	0.000	0	0.000	0.012
ZEFR	0.000	0	0.000	0.009