

FISA MĂSURĂTORILOR GPS

Procesarea datelor

Spectrum® Survey 3.30 PROCESS SUMMARY

Project: D:\...\Meres\GPS\Ghiocailor_SFGH.spr

Coordinate System: STERDOUB2 [Stereographic D...] Datum: ST70_2
Geoid Model: <None> Units: Meters
Processing Date: 2009/03/15 12:17:02.84 (LOCAL) Time Zone: GMT+2.00h

VECTORS [11 total]

ALL VECTORS ARE FIXED

Vector/Occ.	Solution	Length	Used	Ratio	RMS	SD
Cap Baza Vest-SFGH						
01	Fixed (L1)	2303.931	98.88%	12.4	0.006	0.002
101-SFGH						
01	Fixed (L1)	1366.342	100.00%	4.9	0.007	0.002
109-SFGH						
01	Fixed (L1)	1381.154	100.00%	14.2	0.005	0.001
102-SFGH						
01	Fixed (L1)	1369.228	100.00%	7.4	0.006	0.001
108-SFGH						
01	Fixed (L1)	1465.330	100.00%	14.8	0.005	0.001
101-Cap Baza Vest						
01	Fixed (L1)	3668.973	98.01%	5.4	0.007	0.003
109-Cap Baza Vest						
01	Fixed (L1)	3561.519	99.71%	10.8	0.005	0.002
102-Cap Baza Vest						
01	Fixed (L1)	3672.544	98.11%	4.4	0.006	0.003
108-Cap Baza Vest						
01	Fixed (L1)	3675.209	99.86%	9.3	0.005	0.002
101-102						
01	Fixed (L1)	106.564	100.00%	4.3	0.007	0.004
108-109						
01	Fixed (L1)	138.693	99.85%	14.6	0.004	0.002

Compensarea Retelei GPS

Spectrum® Survey 3.30 Network Adjustment Report

Project: D:\PFA
munka\Aktualis\Canalizare_Ghiocailor_SFG\Meres\GPS\Ghiocailor_SFGH.spr

Coordinate System: STERDOUB2 [Stereographic Double] Datum: ST70_2
Geoid Model: <None> Units: Meters
Adjustment Time: 2009/03/15 12:18:26 (LOCAL) Time Zone: GMT+2.00h

Adjustment Type: Free
Computation Level: Full Adjustment

Additional Parameters:

- Deflection of vertical (N-S)	Not used
- Deflection of vertical (E-W)	Not used
- Horizontal rotation	Not used
- Scale difference	Not used

Iteration Criteria:

- Maximum iteration	5
- Maximum coordinate difference (m)	0.0001

Reference Datum:

- Datum Name	ST70_2
- Semi-major axis (m)	6378245.000
- Flattening (m)	1.0/298.300000000

Weight Options:

- Use modeled standard deviations
- Use individual weighting scale

Modeled Standard Deviations

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- X component          5.0 mm + 1.0 ppm
- Y component          5.0 mm + 1.0 ppm
- Z component          5.0 mm + 1.0 ppm

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Geoid Model: NONE

- Orthometric heights will not be computed

Transformation to Map Coordinate System ...YES

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- System name          STERDOUB2
- System type          Stereographic Double
- Linear unit          Meters
- Parameters: Latitude  N 46 00 00.00000
                  Longitude E 25 00 00.00000
                  False Northing (m) 500000.000
                  False Easting (m) 500000.000
                  Scale 0.99975

- Centroid: Latitude  N 45 51 53.47400
              Longitude E 25 47 00.35426
              Elevation (m) 561.619

```

Summary of Adjustment Statistics

Number of Points:

```

- Horizontal fixed & height fixed      1
- Horizontal fixed & height free        0
- Horizontal free & height fixed        0
- Horizontal free & height free         5
-----
total                                  6

```

Number of Unknowns:

```

- Latitude      5
- Longitude     5
- Height        5
- Additional parameters 0
-----
(a) total      15

```

Number of observations

```

- X component      11
- Y component      11
- Z component      11
-----
(b) total          33

```

Number of Rank Defect

(c) 0

Number of Total Redundancy

(b)+(c)-(a) 18

Iterations Used

2

Chi Square Test on the Variance Factor

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Total Number of Observations: 33
Redundancy: 18
Confidence Level: 95%
A Priori Variance Factor: 1.0000
A Posteriori Variance Factor (VF): 0.0347

```

Chi Square Test on the Variance Factor (0.0347)
0.4572 < VF < 1.7517

Standard Deviations for the input observations appear to be too pessimistic.

** Note: The Standardized Deviation of Unit Weight is the square root of the Variance Factor.

Input Coordinates and Corrections

Point	Input Coordinates	Corrections Seconds	m	Horizontal Vector
SFGH	P 45 52 00.07568	- 0.00006	-0.002	0.004 m
	L 25 47 23.33362	0.00016	0.004	119 deg

	H	542.820 m		0.001	
Cap Baza Vest	P	45 51 57.37897	0.00000	0.000	0.000 m
FIXED 3-D	L	25 49 10.06800	0.00000	0.000	0 deg
	H	537.893 m		0.000	
101	P	45 52 03.82681	- 0.00009	-0.003	0.005 m
	L	25 46 20.24464	0.00021	0.005	122 deg
	H	580.329 m		0.002	
109	P	45 51 38.59780	- 0.00002	-0.001	0.004 m
	L	25 46 27.18176	0.00020	0.004	100 deg
	H	563.449 m		0.001	
102	P	45 52 00.38498	- 0.00008	-0.002	0.004 m
	L	25 46 19.88400	0.00017	0.004	123 deg
	H	579.622 m		0.002	
108	P	45 51 40.57978	- 0.00002	-0.001	0.004 m
	L	25 46 21.41355	0.00017	0.004	101 deg
	H	565.602 m		0.001	

Adjusted Coordinates and Standard Deviations					

Point	Adjusted Coordinates		Std Dev (0.001sec) (mm)		95% Ellipse
SFGH	P	45 52 00.07562	0.01966	0.6	major 1.5 mm
	L	25 47 23.33378	0.02814	0.6	azm. 91 deg
	H	542.821 m			minor 1.5 mm
Cap Baza Vest	P	45 51 57.37897	0.00000	0.0	major 0.0 mm
FIXED 3-D	L	25 49 10.06800	0.00000	0.0	azm. 0 deg
	H	537.893 m			minor 0.0 mm
101	P	45 52 03.82672	0.02344	0.7	major 1.8 mm
	L	25 46 20.24485	0.03355	0.7	azm. 93 deg
	H	580.331 m			minor 1.8 mm
109	P	45 51 38.59778	0.02335	0.7	major 1.8 mm
	L	25 46 27.18196	0.03343	0.7	azm. 90 deg
	H	563.450 m			minor 1.8 mm
102	P	45 52 00.38490	0.02344	0.7	major 1.8 mm
	L	25 46 19.88417	0.03356	0.7	azm. 89 deg
	H	579.624 m			minor 1.8 mm
108	P	45 51 40.57976	0.02344	0.7	major 1.8 mm
	L	25 46 21.41372	0.03356	0.7	azm. 93 deg
	H	565.603 m			minor 1.8 mm

Transformation into Map Coordinates (meters)					

Point	Geodetic Coordinate		Map Coordinate		
SFGH	P	45 52 00.07562	N	485489.433	
	L	25 47 23.33378	E	561313.680	
	H	542.821			
Cap Baza Vest	P	45 51 57.37897	N	485429.422	
FIXED 3-D	L	25 49 10.06800	E	563616.111	
	H	537.893			
101	P	45 52 03.82672	N	485591.891	
	L	25 46 20.24485	E	559952.131	
	H	580.331			
109	P	45 51 38.59778	N	484814.607	
	L	25 46 27.18196	E	560109.279	
	H	563.450			
102	P	45 52 00.38490	N	485485.578	
	L	25 46 19.88417	E	559945.382	
	H	579.624			
108	P	45 51 40.57976	N	484874.578	
	L	25 46 21.41372	E	559984.288	
	H	565.603			

Observations and Residuals					
	Observations (m)	Std Dev (m)	Residuals (m)	Standardized Residuals	PPM
Vector: Cap Baza Vest-109 weight= 1.00					
dN	-578.9279	0.0004	0.000	-0.043	0.056
dE	-3514.0659	0.0009	0.000	0.026	0.034
dH	24.5641	0.0046	0.000	0.033	0.045
Vector: 109-108 weight= 1.00					
dN	61.2004	0.0003	0.000	0.059	1.442
dE	-124.4407	0.0008	-0.001	-0.194	4.687
dH	2.1518	0.0035	0.000	0.046	1.082
Vector: SFGH-102 weight= 1.00					
dN	9.7014	0.0004	0.000	-0.100	0.270
dE	-1368.7029	0.0006	0.001	0.126	0.336
dH	36.6559	0.0034	0.000	-0.103	0.278
Vector: SFGH-109 weight= 1.00					
dN	-663.0721	0.0002	0.000	0.096	0.261
dE	-1211.4056	0.0006	-0.001	-0.211	0.565
dH	20.4789	0.0029	0.000	0.014	0.036
Vector: Cap Baza Vest-102 weight= 1.00					
dN	93.9046	0.0010	0.000	0.081	0.106
dE	-3671.1182	0.0012	0.001	0.188	0.248
dH	40.6747	0.0055	0.001	0.014	0.019
Vector: Cap Baza Vest-108 weight= 1.00					
dN	-517.6574	0.0004	0.001	-0.095	0.125
dE	-3638.4729	0.0009	-0.001	-0.199	0.261
dH	26.6537	0.0045	-0.001	0.011	0.014
Vector: 101-102 weight= 1.00					
dN	-106.2768	0.0006	0.000	0.027	0.845
dE	-7.7794	0.0012	-0.001	-0.308	9.572
dH	-0.7080	0.0058	0.000	0.093	2.909
Vector: SFGH-108 weight= 1.00					
dN	-601.8467	0.0001	-0.001	0.030	0.075
dE	-1335.8376	0.0005	0.001	0.371	0.942
dH	22.6133	0.0027	0.000	-0.055	0.136
Vector: SFGH-101 weight= 1.00					
dN	115.9767	0.0005	-0.001	0.406	1.098
dE	-1360.8979	0.0007	-0.001	-0.054	0.146
dH	37.3623	0.0037	0.001	0.013	0.037
Vector: Cap Baza Vest-SFGH weight= 1.00					
dN	83.6959	0.0002	-0.002	0.406	0.781
dE	-2302.4058	0.0006	0.000	0.215	0.417
dH	4.5120	0.0033	0.001	-0.122	0.234
Vector: Cap Baza Vest-101 weight= 1.00					
dN	200.1738	0.0010	0.002	-0.415	0.548
dE	-3663.2744	0.0011	0.000	-0.266	0.352
dH	41.3858	0.0061	-0.001	0.084	0.112

Reliability of Observations					
	Standard Deviations			Reliability	
	Corr Obs (mm)	Residuals (mm)	Redundancy	Internal	External
Vector: Cap Baza Vest-SFGH weight= 1.00					
N	0.16	0.22	0.65	0.03	3.03
E	0.28	0.38	0.65	0.03	3.03
H	1.00	1.36	0.65	0.03	3.03
Vector: SFGH-101 weight= 1.00					
N	0.18	0.18	0.51	0.03	4.06
E	0.32	0.32	0.51	0.03	4.06
H	1.12	1.14	0.51	0.03	4.06
Vector: SFGH-109 weight= 1.00					
N	0.18	0.18	0.51	0.03	4.05
E	0.32	0.32	0.51	0.03	4.05
H	1.11	1.14	0.51	0.03	4.05

Vector: SFGH-102 weight= 1.00					
N	0.18	0.18	0.51	0.03	4.06
E	0.32	0.32	0.51	0.03	4.06
H	1.12	1.14	0.51	0.03	4.06
Vector: SFGH-108 weight= 1.00					
N	0.18	0.18	0.51	0.03	4.04
E	0.32	0.32	0.51	0.03	4.04
H	1.12	1.14	0.51	0.03	4.04
Vector: Cap Baza Vest-101 weight= 1.00					
N	0.19	0.24	0.61	0.03	3.32
E	0.34	0.42	0.61	0.03	3.32
H	1.19	1.49	0.61	0.03	3.32
Vector: Cap Baza Vest-109 weight= 1.00					
N	0.19	0.23	0.60	0.03	3.35
E	0.34	0.41	0.60	0.03	3.35
H	1.19	1.46	0.60	0.03	3.35
Vector: Cap Baza Vest-102 weight= 1.00					
N	0.19	0.24	0.61	0.03	3.32
E	0.34	0.42	0.61	0.03	3.32
H	1.19	1.49	0.61	0.03	3.32
Vector: Cap Baza Vest-108 weight= 1.00					
N	0.19	0.24	0.61	0.03	3.31
E	0.34	0.42	0.61	0.03	3.31
H	1.19	1.49	0.61	0.03	3.31
Vector: 101-102 weight= 1.00					
N	0.18	0.16	0.44	0.03	4.65
E	0.32	0.29	0.44	0.03	4.65
H	1.15	1.02	0.44	0.03	4.65
Vector: 109-108 weight= 1.00					
N	0.18	0.16	0.44	0.03	4.64
E	0.32	0.29	0.44	0.03	4.64
H	1.15	1.02	0.44	0.03	4.64

Relative Precision

Ellip. Dist. Height Diff. Azimuth (m)	Std Dev (mm)	Relative Precision	95% Ellipse
Vector: SFGH-101 weight= 1.00			
1365.708	0.7	Hor. 1/2017192	major 1.7 mm
37.509	0.7	Ver. 1/2017012	azm. 90 deg
274 52 15.5	0.1sec		minor 1.7 mm
Vector: SFGH-109 weight= 1.00			
1380.882	0.7	Hor. 1/2040737	major 1.7 mm
20.628	0.7	Ver. 1/2040550	azm. 0 deg
241 18 20.1	0.1sec		minor 1.7 mm
Vector: SFGH-102 weight= 1.00			
1368.613	0.7	Hor. 1/2021268	major 1.7 mm
36.802	0.7	Ver. 1/2021088	azm. 90 deg
270 24 21.9	0.1sec		minor 1.7 mm
Vector: SFGH-108 weight= 1.00			
1465.025	0.7	Hor. 1/2157992	major 1.7 mm
22.782	0.7	Ver. 1/2157797	azm. 0 deg
245 44 47.5	0.1sec		minor 1.7 mm
Vector: Cap Baza Vest-SFGH weight= 1.00			
2303.731	0.6	Hor. 1/3795807	major 1.5 mm
4.928	0.6	Ver. 1/3795483	azm. 90 deg
272 04 54.5	0.1sec		minor 1.5 mm
Vector: 101-102 weight= 1.00			
106.551	0.7	Hor. 1/152952	major 1.7 mm
-0.707	0.7	Ver. 1/152938	azm. 90 deg
184 11 13.5	1.3sec		minor 1.7 mm
Vector: 109-108 weight= 1.00			

138.664	0.7	Hor. 1/199062	major 1.7 mm
2.153	0.7	Ver. 1/199044	azm. 91 deg
296 11 17.0	1.0sec		minor 1.7 mm

Desired Network Accuracy was met for all Vectors

Point List

Spectrum® Survey 3.30

POINT LIST

Project: D:\...\Canalizare_Ghiocailor_SFG\Meres\GPS\Ghiocailor_SFG*

Coordinate System: STERDOUB2 [Stereographic D...] Datum: ST70_2
 Geoid Model: <None> Units: Meters
 Time Format: LOCAL Time Zone: GMT+2.00h

POINTS	Process Date	Source	Control
SFGH	2009/03/15 12:18:26.60	Adjustment (Free)	
WGS84 (meters)	ST70_2 (meters)	STERDOUB2 (meters)	
X: 4006244.824	Lat: N 45 52 00.07562	E: 561313.680	
Y: 1935682.955	Lon: E 25 47 23.33378	N: 485489.433	
Z: 4555310.563	Hgt: 542.821		
Cap Baza Vest	2009/03/15 12:18:26.60	User input	GHV
WGS84 (meters)	ST70_2 (meters)	STERDOUB2 (meters)	
X: 4005293.286	Lat: N 45 51 57.37897	E: 563616.111	
Y: 1937780.303	Lon: E 25 49 10.06800	N: 485429.422	
Z: 4555249.044	Hgt: 537.893		
101	2009/03/15 12:18:26.60	Adjustment (Free)	
WGS84 (meters)	ST70_2 (meters)	STERDOUB2 (meters)	
X: 4006785.389	Lat: N 45 52 03.82672	E: 559952.131	
Y: 1934432.713	Lon: E 25 46 20.24485	N: 485591.891	
Z: 4555418.137	Hgt: 580.331		
109	2009/03/15 12:18:26.60	Adjustment (Free)	
WGS84 (meters)	ST70_2 (meters)	STERDOUB2 (meters)	
X: 4007213.210	Lat: N 45 51 38.59778	E: 560109.279	
Y: 1934805.465	Lon: E 25 46 27.18196	N: 484814.607	
Z: 4554863.544	Hgt: 563.450		
102	2009/03/15 12:18:26.60	Adjustment (Free)	
WGS84 (meters)	ST70_2 (meters)	STERDOUB2 (meters)	
X: 4006857.019	Lat: N 45 52 00.38490	E: 559945.382	
Y: 1934458.658	Lon: E 25 46 19.88417	N: 485485.578	
Z: 4555343.626	Hgt: 579.624		
108	2009/03/15 12:18:26.60	Adjustment (Free)	
WGS84 (meters)	ST70_2 (meters)	STERDOUB2 (meters)	
X: 4007229.119	Lat: N 45 51 40.57976	E: 559984.288	
Y: 1934674.958	Lon: E 25 46 21.41372	N: 484874.578	
Z: 4554907.709	Hgt: 565.603		

COORDONATE FINALE TRANSFORMATE

NR.	X	Y	Z
101	485591.833	559952.142	580.331
102	485485.521	559945.393	579.624
108	484874.521	559984.303	565.603
109	484814.552	560109.293	563.450