

Network Adjustment

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Created: 06/02/2020 12:55:55

Project Information

Project name: Übung12_GR2_3
 Date created: 06/02/2020 12:27:02
 Time zone: 2h 00'
 Coordinate system name: WGS 1984
 Application software: LEICA Geo Office 8.4
 Processing kernel: MOVE3 4.1

General Information

Adjustment

Type: Constrained
 Dimension: 3D
 Coordinate system: WGS 1984
 Height mode: Ellipsoidal

Number of iterations: 1
 Maximum coord correction in last iteration: 0.0000 m ✓ (tolerance is met)

Stations

Number of (partly) known stations: 2
 Number of unknown stations: 3
 Total: 5

Observations

GPS coordinate differences: 24 (8 baselines)
 Known coordinates: 5
 Total: 29

Unknowns

Coordinates: 15
 Total: 15

Degrees of freedom: 14

Testing

Alfa (multi dimensional): 0.3623
 Alfa 0 (one dimensional): 5.0 %
 Beta: 80.0 %
 Sigma a-priori (GPS): 40.0

Critical value W-test: 1.96
 Critical value T-test (2-dimensional): 2.42
 Critical value T-test (3-dimensional): 1.89
 Critical value F-test: 1.09
 F-test: 0.60 ✓ (accepted)

Results based on a-posteriori variance factor

Adjustment Results

Coordinates

Station		Coordinate	Corr	Sd	
Pf2	Latitude	48° 44' 31.26369" N	0.0038 m	0.0009 m	
	Longitude	9° 05' 15.41117" E	0.0013 m	0.0008 m	
	Height	484.9899 m	-0.0015 m	0.0027 m	
Pf3	Latitude	48° 44' 32.88880" N	0.0000 m	-	fixed

	Longitude	9° 05' 13.81376" E	0.0000 m	-	fixed
	Height	481.2398 m	0.0009 m	0.0082 m	
Pf4	Latitude	48° 44' 36.18427" N	0.0026 m	0.0018 m	
	Longitude	9° 05' 10.72205" E	0.0008 m	0.0016 m	
	Height	474.2541 m	-0.0014 m	0.0054 m	
Pf5	Latitude	48° 44' 42.77089" N	0.0000 m	-	fixed
	Longitude	9° 05' 04.48336" E	0.0000 m	-	fixed
	Height	470.3943 m	0.0000 m	-	fixed
Pf8	Latitude	48° 44' 33.57567" N	0.0017 m	0.0015 m	
	Longitude	9° 05' 06.73106" E	0.0005 m	0.0011 m	
	Height	480.4372 m	0.0012 m	0.0058 m	

Observations and Residuals

	Station	Target	Adj obs	Resid	Resid (ENH)	Sd
DX	Pf2	Pf5	-238.1352 m	0.0003 m	0.0004 m	0.0020 m
DY			-264.1886 m	0.0005 m	0.0015 m	0.0009 m
DZ			223.4458 m	0.0027 m	0.0022 m	0.0020 m
DX	Pf2	Pf8	-27.9756 m	-0.0023 m	0.0010 m	0.0038 m
DY			-184.0770 m	0.0006 m	0.0004 m	0.0014 m
DZ			43.6772 m	-0.0020 m	-0.0029 m	0.0042 m
DX	Pf2	Pf4	-104.6994 m	-0.0001 m	-0.0002 m	0.0038 m
DY			-113.7691 m	-0.0002 m	-0.0014 m	0.0017 m
DZ			92.1704 m	-0.0023 m	-0.0019 m	0.0039 m
DX	Pf5	Pf8	210.1596 m	0.0022 m	-0.0008 m	0.0040 m
DY			80.1115 m	-0.0004 m	0.0051 m	0.0014 m
DZ			-179.7686 m	0.0102 m	0.0091 m	0.0044 m
DX	Pf5	Pf4	133.4359 m	-0.0011 m	0.0004 m	0.0040 m
DY			150.4194 m	0.0002 m	0.0031 m	0.0017 m
DZ			-131.2754 m	0.0035 m	0.0019 m	0.0040 m
DX	Pf5	Pf2	238.1352 m	-0.0013 m	0.0009 m	0.0020 m
DY			264.1886 m	0.0007 m	0.0013 m	0.0009 m
DZ			-223.4458 m	0.0006 m	-0.0004 m	0.0020 m
DX	Pf3	Pf8	6.5788 m	0.0121 m	-0.0022 m	0.0039 m
DY			-145.4976 m	-0.0003 m	-0.0030 m	0.0013 m
DZ			13.3893 m	0.0091 m	0.0147 m	0.0046 m
DX	Pf3	Pf8	6.5788 m	-0.0041 m	0.0002 m	0.0039 m
DY			-145.4976 m	-0.0004 m	-0.0025 m	0.0013 m
DZ			13.3893 m	-0.0085 m	-0.0091 m	0.0046 m

GPS Baseline Vector Residuals

	Station	Target	Adj vector [m]	Resid [m]	Resid [ppm]
DV	Pf2	Pf5	420.0381	0.0027	6.4
DV	Pf2	Pf8	191.2451	0.0031	16.3
DV	Pf2	Pf4	180.0021	0.0024	13.1
DV	Pf5	Pf8	287.9265	0.0104	36.2
DV	Pf5	Pf4	240.1341	0.0036	15.2
DV	Pf5	Pf2	420.0381	0.0016	3.8
DV	Pf3	Pf8	146.2604	0.0152	103.5
DV	Pf3	Pf8	146.2604	0.0095	64.6

Absolute Error Ellipses (2D - 39.4% 1D - 68.3%)

Station	A [m]	B [m]	A/B	Phi	Sd Hgt [m]
Pf2	0.0009	0.0008	1.2	3°	0.0027
Pf3	0.0000	0.0000	1.0	0°	0.0082
Pf4	0.0018	0.0016	1.2	1°	0.0054
Pf5	0.0000	0.0000	1.0	0°	0.0000
Pf8	0.0015	0.0011	1.3	3°	0.0058

Testing and Estimated Errors

Coordinate Tests

Station		MDB	BNR	W-Test	T-Test
Pf3	Latitude	0.0088 m	15.4	-1.37	1.09
	Longitude	0.0067 m	14.9	-0.52	
Pf5	Latitude	0.0088 m	13.5	1.37	0.00
	Longitude	0.0067 m	12.6	0.52	
	Height	99.9999 m	999.9	0.00	

Observation Tests

	Station	Target	MDB	Red	BNR	W-Test	T-Test
DX	Pf2	Pf5	0.0067 m	51	2.6	-1.38	1.02
DY			0.0044 m	56	2.5	0.22	
DZ			0.0068 m	59	2.5	1.68	
DX	Pf2	Pf8	0.0110 m	42	3.1	-0.59	0.56
DY			0.0070 m	56	2.6	0.82	
DZ			0.0124 m	28	3.4	-0.11	
DX	Pf2	Pf4	0.0139 m	26	4.5	1.18	0.67
DY			0.0090 m	31	4.2	0.02	
DZ			0.0138 m	37	4.1	-1.40	
DX	Pf5	Pf8	0.0139 m	71	1.4	-1.03	1.16
DY			0.0084 m	79	1.4	-0.50	
DZ			0.0160 m	78	1.3	1.78	
DX	Pf5	Pf4	0.0139 m	68	2.0	-1.18	0.67
DY			0.0090 m	62	2.2	-0.02	
DZ			0.0138 m	55	2.2	1.40	
DX	Pf5	Pf2	0.0069 m	63	2.1	-1.21	0.63
DY			0.0045 m	60	2.3	0.75	
DZ			0.0069 m	51	2.4	0.93	
DX	Pf3	Pf8	0.0136 m	75	1.4	1.67	1.75
DY			0.0084 m	80	1.4	-0.82	
DZ			0.0162 m	71	1.5	-0.30	
DX	Pf3	Pf8	0.0124 m	45	2.2	0.06	1.49
DY			0.0071 m	66	2.0	0.29	
DZ			0.0150 m	63	1.7	-1.27	

Redundancy:**W-Test:**



T-Test (2-dimensional):



T-Test (3-dimensional):

