

Network Adjustment

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Created: 06/02/2020 12:40:45

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: Inner 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: 0
 Number of unknown stations: 5
 Total: 5

Observations

GPS coordinate differences: 42 (14 baselines)
 Inner constraints: 3
 Total: 45

Unknowns

Coordinates: 15
 Total: 15

Degrees of freedom: 30

Testing

Alfa (multi dimensional): 0.4836
 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: 0.99
 F-test: 0.95 ✓ (accepted)

Results based on a-posteriori variance factor

Adjustment Results

Coordinates

Station		Coordinate	Corr	Sd
Pf2	Latitude	48° 44' 31.30752" N	0.0002 m	0.0007 m
	Longitude	9° 05' 15.47392" E	0.0004 m	0.0006 m
	Height	480.0969 m	0.0000 m	0.0019 m
Pf3	Latitude	48° 44' 32.93289" N	0.0003 m	0.0007 m

Pf4	Longitude	9° 05' 13.87662" E	0.0005 m	0.0006 m
	Height	476.3452 m	-0.0003 m	0.0019 m
	Latitude	48° 44' 36.22802" N	-0.0007 m	0.0016 m
Pf5	Longitude	9° 05' 10.78471" E	-0.0014 m	0.0013 m
	Height	469.3615 m	0.0017 m	0.0043 m
	Latitude	48° 44' 42.81470" N	-0.0003 m	0.0008 m
Pf8	Longitude	9° 05' 04.54610" E	0.0002 m	0.0007 m
	Height	465.5018 m	-0.0016 m	0.0022 m
	Latitude	48° 44' 33.61960" N	0.0005 m	0.0015 m
	Longitude	9° 05' 06.79385" E	0.0002 m	0.0012 m
	Height	475.5424 m	0.0002 m	0.0042 m

Observations and Residuals

	Station	Target	Adj obs	Resid	Resid (ENH)	Sd
DX	Pf3	Pf5	-203.5729 m	0.0008 m	-0.0007 m	0.0019 m
DY			-225.6102 m	-0.0006 m	-0.0026 m	0.0008 m
DZ			193.1538 m	-0.0031 m	-0.0019 m	0.0019 m
DX	Pf3	Pf4	-70.1356 m	0.0078 m	-0.0053 m	0.0039 m
DY			-75.1924 m	-0.0041 m	-0.0085 m	0.0017 m
DZ			61.8775 m	-0.0049 m	0.0010 m	0.0041 m
DX	Pf2	Pf8	-27.9790 m	0.0010 m	0.0001 m	0.0036 m
DY			-184.0767 m	0.0003 m	-0.0024 m	0.0016 m
DZ			43.6777 m	-0.0024 m	-0.0011 m	0.0041 m
DX	Pf2	Pf5	-238.1344 m	-0.0005 m	0.0006 m	0.0019 m
DY			-264.1886 m	0.0005 m	0.0022 m	0.0009 m
DZ			223.4455 m	0.0029 m	0.0019 m	0.0020 m
DX	Pf2	Pf4	-104.6971 m	-0.0024 m	0.0018 m	0.0039 m
DY			-113.7708 m	0.0014 m	0.0009 m	0.0017 m
DZ			92.1691 m	-0.0011 m	-0.0022 m	0.0041 m
DX	Pf2	Pf3	-34.5615 m	0.0056 m	-0.0007 m	0.0015 m
DY			-38.5784 m	0.0001 m	-0.0011 m	0.0007 m
DZ			30.2917 m	0.0047 m	0.0072 m	0.0016 m
DX	Pf5	Pf8	210.1555 m	0.0064 m	-0.0018 m	0.0038 m
DY			80.1119 m	-0.0008 m	0.0016 m	0.0017 m
DZ			-179.7678 m	0.0094 m	0.0112 m	0.0042 m
DX	Pf5	Pf4	133.4373 m	-0.0026 m	0.0022 m	0.0041 m
DY			150.4178 m	0.0019 m	0.0046 m	0.0018 m
DZ			-131.2764 m	0.0044 m	0.0018 m	0.0042 m
DX	Pf5	Pf3	203.5729 m	-0.0008 m	-0.0008 m	0.0019 m
DY			225.6102 m	-0.0010 m	-0.0004 m	0.0008 m
DZ			-193.1538 m	-0.0016 m	-0.0018 m	0.0019 m
DX	Pf5	Pf2	238.1344 m	-0.0005 m	0.0007 m	0.0019 m
DY			264.1886 m	0.0007 m	0.0005 m	0.0009 m
DZ			-223.4455 m	0.0003 m	0.0000 m	0.0020 m
DX	Pf3	Pf8	6.5825 m	0.0084 m	-0.0010 m	0.0036 m
DY			-145.4983 m	0.0004 m	0.0019 m	0.0016 m
DZ			13.3860 m	0.0124 m	0.0148 m	0.0041 m
DX	Pf3	Pf8	6.5825 m	-0.0079 m	0.0014 m	0.0036 m
DY			-145.4983 m	0.0002 m	0.0024 m	0.0016 m
DZ			13.3860 m	-0.0052 m	-0.0090 m	0.0041 m
DX	Pf3	Pf2	34.5615 m	0.0006 m	0.0016 m	0.0015 m
DY			38.5784 m	0.0017 m	0.0008 m	0.0007 m
DZ			-30.2917 m	0.0021 m	0.0021 m	0.0016 m
DX	Pf3	Pf2	34.5615 m	0.0044 m	-0.0019 m	0.0015 m
DY			38.5784 m	-0.0013 m	-0.0010 m	0.0007 m
DZ			-30.2917 m	0.0032 m	0.0051 m	0.0016 m

GPS Baseline Vector Residuals

	Station	Target	Adj vector [m]	Resid [m]	Resid [ppm]
DV	Pf3	Pf5	360.0698	0.0033	9.1
DV	Pf3	Pf4	120.0072	0.0101	84.2
DV	Pf2	Pf8	191.2454	0.0026	13.8
DV	Pf2	Pf5	420.0375	0.0030	7.1
DV	Pf2	Pf4	180.0012	0.0030	16.6
DV	Pf2	Pf3	60.0031	0.0073	121.3
DV	Pf5	Pf8	287.9231	0.0114	39.7
DV	Pf5	Pf4	240.1344	0.0054	22.7
DV	Pf5	Pf3	360.0698	0.0020	5.6
DV	Pf5	Pf2	420.0375	0.0009	2.1
DV	Pf3	Pf8	146.2609	0.0150	102.2

DV	Pf3	Pf8	146.2609	0.0094	64.5
DV	Pf3	Pf2	60.0031	0.0028	46.3
DV	Pf3	Pf2	60.0031	0.0056	92.7

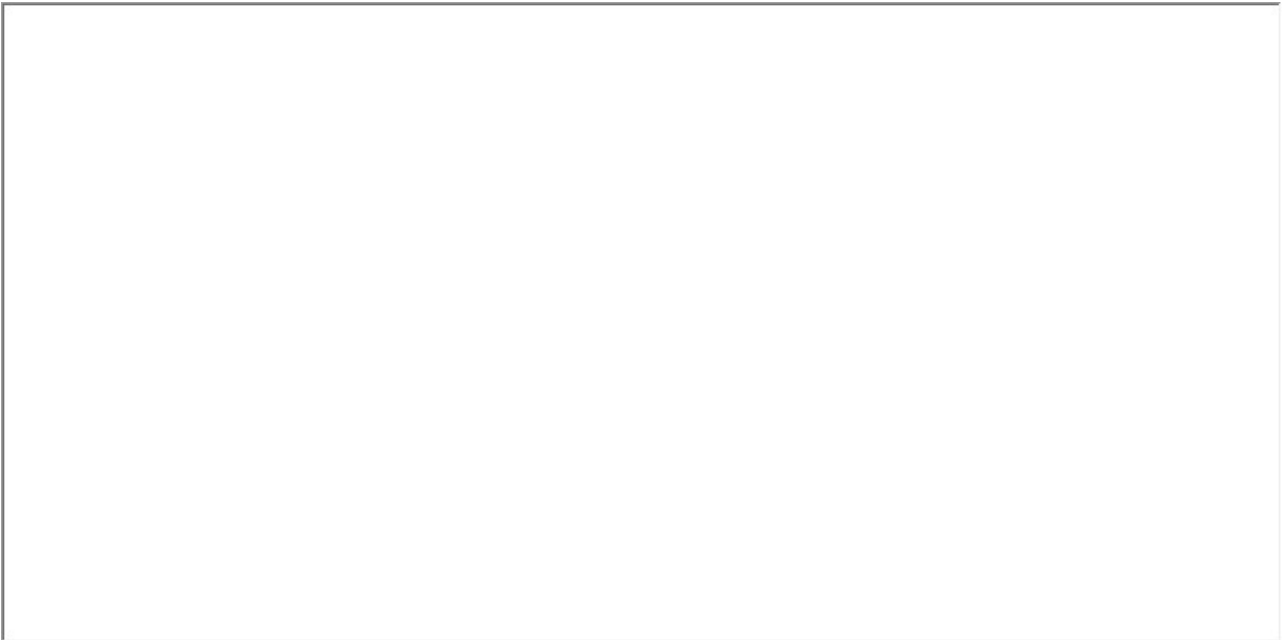
Absolute Error Ellipses (2D - 39.4% 1D - 68.3%)

Station	A [m]	B [m]	A/B	Phi	Sd Hgt [m]
Pf2	0.0007	0.0006	1.2	3°	0.0019
Pf3	0.0007	0.0006	1.3	4°	0.0019
Pf4	0.0016	0.0013	1.2	3°	0.0043
Pf5	0.0008	0.0007	1.2	4°	0.0022
Pf8	0.0015	0.0012	1.3	3°	0.0042

Testing and Estimated Errors**Observation Tests**

	Station	Target	MDB	Red	BNR	W-Test	T-Test
DX	Pf3	Pf5	0.0089 m	75	1.4	1.05	0.61
DY			0.0052 m	74	1.6	-0.39	
DZ			0.0097 m	82	1.3	-1.24	
DX	Pf3	Pf4	0.0168 m	69	1.6	2.54	3.02
DY			0.0099 m	68	1.9	-1.82	
DZ			0.0183 m	76	1.5	-1.88	
DX	Pf2	Pf8	0.0128 m	62	2.6	1.11	0.62
DY			0.0083 m	62	2.3	0.24	
DZ			0.0143 m	47	2.9	-1.35	
DX	Pf2	Pf5	0.0074 m	68	1.9	-1.53	1.03
DY			0.0049 m	72	1.8	0.20	
DZ			0.0077 m	73	1.8	1.68	
DX	Pf2	Pf4	0.0140 m	46	3.2	-0.86	0.61
DY			0.0089 m	51	2.8	1.12	
DZ			0.0146 m	50	3.1	0.20	
DX	Pf2	Pf3	0.0059 m	69	2.0	1.50	1.87
DY			0.0039 m	72	1.8	-0.90	
DZ			0.0062 m	70	2.0	0.10	
DX	Pf5	Pf8	0.0172 m	80	1.3	0.13	0.48
DY			0.0106 m	79	1.4	-0.64	
DZ			0.0200 m	83	1.3	0.70	
DX	Pf5	Pf4	0.0166 m	77	1.7	-1.49	0.96
DY			0.0105 m	73	1.7	0.60	
DZ			0.0163 m	66	1.9	1.45	
DX	Pf5	Pf3	0.0075 m	70	2.0	0.33	0.27
DY			0.0047 m	69	1.9	-0.63	
DZ			0.0075 m	61	2.1	-0.48	
DX	Pf5	Pf2	0.0079 m	76	1.6	-0.41	0.13
DY			0.0051 m	74	1.7	0.51	
DZ			0.0078 m	69	1.8	0.25	
DX	Pf3	Pf8	0.0168 m	82	1.3	0.10	0.65
DY			0.0104 m	81	1.3	-0.38	
DZ			0.0196 m	84	1.2	0.87	
DX	Pf3	Pf8	0.0145 m	65	1.8	-1.45	1.01
DY			0.0087 m	68	1.9	0.59	
DZ			0.0180 m	80	1.4	0.27	
DX	Pf3	Pf2	0.0069 m	81	1.4	-0.71	0.73
DY			0.0044 m	80	1.4	1.16	
DZ			0.0068 m	73	1.6	0.73	
DX	Pf3	Pf2	0.0069 m	73	1.5	1.54	1.89
DY			0.0040 m	72	1.7	-1.60	
DZ			0.0077 m	80	1.3	0.11	

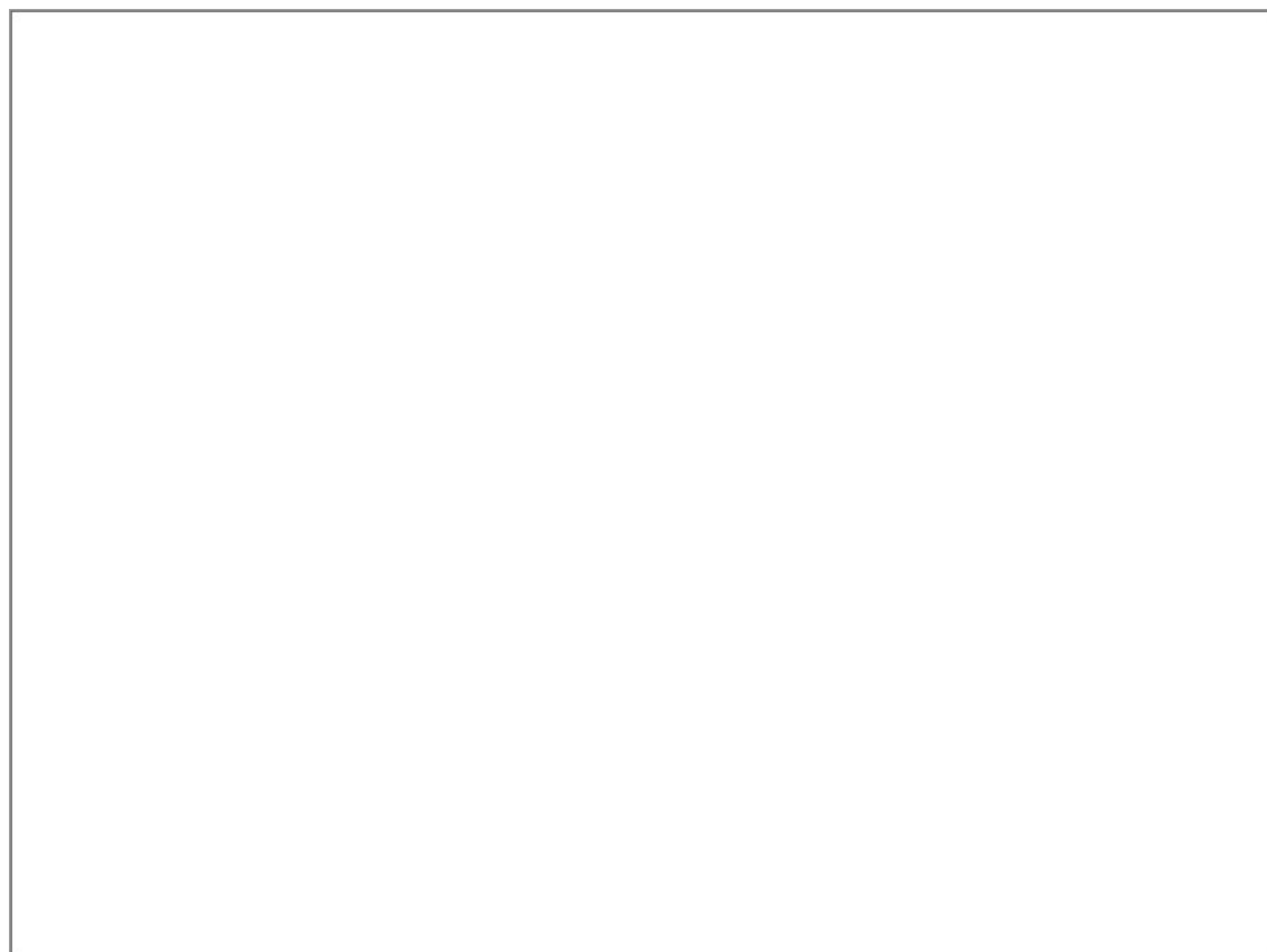
Redundancy:



W-Test:



T-Test (3-dimensional):

**Estimated Errors (Observations)****Estimated Errors For Observations With Rejected W-Tests (max 10)**

	Station	Target	W-Test	Fact	Est err
DX	Pf3	Pf4	2.54	1.3	0.0153 m

Estimated Errors For Observations With Rejected Antenna Hgt W-Tests (max 10)

Station	Target	W-Test	Fact	MDB [m]	Est ant err [m]
Pf2	Pf3	2.02	1.0	0.0133	0.0096

Estimated Errors For Observations With Rejected T-Tests (max 10)

	Station	Target	T-Test	Fact	Est err
DX	Pf3	Pf4	3.02	1.3	0.0101 m
DY					-0.0059 m
DZ					-0.0061 m
DX	Pf3	Pf2	1.89	1.0	0.0059 m
DY					-0.0016 m
DZ					0.0043 m