

Adjustment of local geodetic network

<http://www.gnu.org/software/gama/>

version: 1.7.09-svd / win32-msvc

Network description

 pplanner

General parameters of the adjustment

Coordinates	xyz	xy	z
Adjusted	: 27	0	0
Constrained *	: 27	0	0
Fixed	: 2	0	0

Total	: 29	0	0

Number of directions	: 138	Number of bearings:	8
Zenith angles	: 138		
Slope distances	: 138		
Total of observations	: 414		

Number of project equations:	414	Number of unknowns:	89
Degrees of freedom	: 325	Network defect	: 0

m0 apriori : 1.00
 m0' aposteriori: 0.06 [pvv] : 1.16820e+000

During statistical analysis we work

- with apriori standard deviation 1.00
- with confidence level 95 %

Maximal normalized residual 0.24 does not exceed critical value 1.96
 on significance level 5 % for observation #112

<z-angle from="1503.00" to="4003.00" val="104.5456" stdev="3.0" />

Fixed points

point	x	y	z
5012.00	1067156.099	848284.291	472.607
5016.00	1066181.644	848543.149	433.726

Adjusted coordinates

i	point	approximate value	correction	adjusted value	std.dev	conf.i.
		value	====	[m]	====	value
		====	====	value	====	[mm]
1501.00						
1	X *	1066234.47200	-0.00016	1066234.47184	1.0	2.0
2	Y *	848599.58000	-0.00006	848599.57994	0.6	1.2
3	Z *	433.38500	0.00002	433.38502	0.2	0.4
1502.00						

23	X *	1066323.50400	0.00002	1066323.50402	0.8	1.6
24	Y *	848396.12000	-0.00003	848396.11997	0.8	1.6
25	Z *	446.92100	0.00002	446.92102	0.3	0.5
1503.00						
39	X *	1066461.51300	0.00003	1066461.51303	1.1	2.2
40	Y *	848298.56900	0.00006	848298.56906	1.1	2.2
41	Z *	458.50500	-0.00002	458.50498	0.3	0.6
1504.00						
46	X *	1066601.72600	0.00003	1066601.72603	1.2	2.4
47	Y *	848258.73500	0.00013	848258.73513	1.3	2.5
48	Z *	468.57800	0.00000	468.57800	0.3	0.6
1505.00						
59	X *	1066727.12600	0.00003	1066727.12603	1.2	2.3
60	Y *	848272.17100	0.00017	848272.17117	1.2	2.4
61	Z *	473.41100	-0.00001	473.41099	0.3	0.5
1506.00						
69	X *	1066843.20000	-0.00002	1066843.19998	1.1	2.2
70	Y *	848305.29600	0.00010	848305.29610	1.0	1.9
71	Z *	474.18700	-0.00002	474.18698	0.2	0.5
1507.00						
79	X *	1066984.69500	0.00013	1066984.69513	1.2	2.4
80	Y *	848321.69100	0.00009	848321.69109	0.7	1.3
81	Z *	473.30900	-0.00006	473.30894	0.2	0.4
1508.00						
86	X *	1067096.63100	0.00005	1067096.63105	1.2	2.3
87	Y *	848286.87000	0.00007	848286.87007	0.3	0.5
88	Z *	472.63900	-0.00003	472.63897	0.2	0.3
4002.00						
4	X *	1066259.99100	-0.00020	1066259.99080	0.9	1.8
5	Y *	848618.89000	-0.00006	848618.88994	0.9	1.8
6	Z *	433.84700	0.00001	433.84701	0.3	0.5
4003.00						
14	X *	1066281.11300	-0.00012	1066281.11288	0.9	1.8
15	Y *	848508.29400	0.00008	848508.29408	1.6	3.1
16	Z *	438.71900	0.00007	438.71907	0.4	0.8
4004.00						
17	X *	1066350.27100	-0.00007	1066350.27093	0.9	1.7
18	Y *	848422.52200	-0.00006	848422.52194	1.0	1.9
19	Z *	445.32100	0.00002	445.32102	0.3	0.6
4005.00						
27	X *	1066439.47100	-0.00004	1066439.47096	1.1	2.2
28	Y *	848331.19300	0.00009	848331.19309	1.4	2.6
29	Z *	455.45000	-0.00001	455.44999	0.3	0.6
4006.00						
33	X *	1066546.56800	0.00010	1066546.56810	1.3	2.6
34	Y *	848288.97100	0.00003	848288.97103	1.3	2.6
35	Z *	464.95000	-0.00000	464.95000	0.3	0.6
4007.00						
43	X *	1066679.18000	0.00009	1066679.18009	1.2	2.3
44	Y *	848226.50400	0.00016	848226.50416	1.4	2.7
45	Z *	474.14000	0.00003	474.14003	0.3	0.6

		4008.00					
50	X *	1066805.38100	0.00013	1066805.38113	1.2	2.4	
51	Y *	848278.64800	0.00021	848278.64821	1.1	2.2	
52	Z *	473.97900	-0.00001	473.97899	0.3	0.5	
		4009.00					
66	X *	1066921.85000	-0.00004	1066921.84996	1.4	2.8	
67	Y *	848308.69800	0.00010	848308.69810	0.8	1.6	
68	Z *	472.26700	-0.00008	472.26692	0.3	0.5	
		4011.00					
73	X *	1067121.64800	-0.00007	1067121.64793	1.3	2.5	
74	Y *	848184.07300	0.00009	848184.07309	1.0	2.0	
75	Z *	469.52000	-0.00006	469.51994	0.3	0.7	
		5003.00					
20	X *	1066237.57400	0.00003	1066237.57403	0.8	1.6	
21	Y *	848458.79500	-0.00007	848458.79493	0.8	1.6	
22	Z *	440.92700	0.00001	440.92701	0.4	0.8	
		5006.00					
30	X *	1066477.89200	0.00002	1066477.89202	1.1	2.2	
31	Y *	848270.25100	0.00008	848270.25108	1.4	2.7	
32	Z *	461.95900	-0.00003	461.95897	0.3	0.6	
		5007.00					
36	X *	1066637.16300	-0.00003	1066637.16297	1.3	2.5	
37	Y *	848288.20200	0.00012	848288.20212	1.4	2.7	
38	Z *	470.04200	0.00002	470.04202	0.3	0.6	
		5008.00					
56	X *	1066729.58600	0.00001	1066729.58601	1.2	2.4	
57	Y *	848298.18400	0.00018	848298.18418	1.4	2.7	
58	Z *	473.26300	-0.00001	473.26299	0.3	0.6	
		5009.00					
53	X *	1066854.75800	0.00004	1066854.75804	1.2	2.3	
54	Y *	848334.30500	0.00019	848334.30519	1.1	2.1	
55	Z *	475.58700	-0.00000	475.58700	0.3	0.5	
		5010.00					
63	X *	1066945.09700	0.00014	1066945.09714	1.2	2.4	
64	Y *	848348.77100	0.00007	848348.77107	0.8	1.6	
65	Z *	473.40500	-0.00006	473.40494	0.3	0.5	
		5011.00					
83	X *	1067072.57800	0.00004	1067072.57804	1.1	2.2	
84	Y *	848247.88000	0.00015	848247.88015	0.6	1.2	
85	Z *	472.21200	-0.00006	472.21194	0.2	0.4	
		5014.00					
8	X *	1066209.28300	-0.00008	1066209.28292	0.9	1.8	
9	Y *	848594.29300	-0.00007	848594.29293	0.6	1.1	
10	Z *	432.68900	0.00003	432.68903	0.2	0.5	
		5017.00					
11	X *	1066212.33800	-0.00010	1066212.33790	0.7	1.4	
12	Y *	848575.71100	-0.00008	848575.71092	0.7	1.4	
13	Z *	433.27100	0.00004	433.27104	0.2	0.5	
		6.00					
76	X *	1067058.33400	0.00009	1067058.33409	1.2	2.4	
77	Y *	848328.26400	0.00003	848328.26403	0.6	1.1	
78	Z *	471.87100	-0.00001	471.87099	0.2	0.5	

Adjusted orientation unknowns

i	standpoint	approximate value [g]	correction [g]	adjusted value [g]	std.dev	conf.i.
=====	=====	=====	=====	=====	=====	=====
7	1501.00	0.000001	0.000059	0.000060	4.8	9.3
26	1502.00	0.000016	0.000027	0.000043	2.1	4.2
42	1503.00	399.999975	0.000041	0.000016	1.9	3.8
49	1504.00	399.999987	0.000039	0.000026	1.8	3.6
62	1505.00	399.999984	0.000032	0.000016	1.8	3.5
72	1506.00	399.999988	-0.000016	399.999972	1.9	3.7
82	1507.00	0.000024	-0.000042	399.999982	2.2	4.4
89	1508.00	0.000003	-0.000033	399.999970	2.3	4.6

Mean errors and parameters of error ellipses

point	mp [mm]	mxy [mm]	mean error ellipse			conf.err. ellipse		g
=====	=====	=====	a [mm]	b	alpha[g]	a' [mm]	b'	=====
1501.00	1.2	0.8	1.1	0.5	24.3	2.7	1.2	0.1
1502.00	1.2	0.8	0.9	0.8	149.7	2.2	1.9	0.0
1503.00	1.6	1.1	1.1	1.1	49.9	2.8	2.6	0.0
1504.00	1.7	1.2	1.3	1.1	60.7	3.3	2.8	0.0
1505.00	1.7	1.2	1.3	1.1	54.7	3.1	2.7	0.1
1506.00	1.5	1.1	1.2	0.9	17.5	2.8	2.3	0.0
1507.00	1.4	1.0	1.2	0.7	1.1	2.9	1.6	0.1
1508.00	1.2	0.8	1.2	0.3	197.8	2.9	0.7	0.1
4002.00	1.3	0.9	1.1	0.8	47.3	2.6	1.9	0.1
4003.00	1.8	1.3	1.7	0.7	127.1	4.2	1.7	0.1
4004.00	1.3	0.9	1.0	0.9	81.5	2.5	2.1	0.0
4005.00	1.7	1.2	1.4	1.0	124.0	3.4	2.6	0.0
4006.00	1.9	1.3	1.3	1.3	50.8	3.3	3.1	0.0
4007.00	1.8	1.3	1.4	1.1	80.7	3.4	2.8	0.1
4008.00	1.7	1.2	1.3	1.0	40.9	3.2	2.6	0.1
4009.00	1.6	1.2	1.4	0.8	6.3	3.5	2.0	0.1
4011.00	1.6	1.2	1.4	0.8	165.6	3.5	2.0	0.0
5003.00	1.2	0.8	0.9	0.7	148.8	2.3	1.7	0.0
5006.00	1.8	1.2	1.4	1.1	91.1	3.3	2.8	0.0
5007.00	1.9	1.3	1.5	1.1	55.2	3.7	2.7	0.0
5008.00	1.8	1.3	1.4	1.1	67.2	3.5	2.7	0.1
5009.00	1.6	1.1	1.2	1.0	36.9	3.0	2.5	0.1
5010.00	1.5	1.0	1.2	0.8	7.1	3.0	2.0	0.1
5011.00	1.3	0.9	1.1	0.6	194.3	2.8	1.5	0.1
5014.00	1.1	0.8	1.0	0.5	24.6	2.4	1.2	0.0
5017.00	1.0	0.7	0.9	0.4	50.3	2.3	1.1	0.1
6.00	1.4	1.0	1.3	0.5	194.5	3.1	1.3	0.0

Maximal mean position error is 1.9 mm on point 5007.00
 Average mean position error is 1.5 mm

Adjusted observations

i	standpoint	target	observed value	adjusted [m g]	std.dev	conf.i.
=====	=====	=====	=====	=====	=====	=====
1	1501.00	4002.00 zenit	99.081000	99.080992	3.0	5.8
2		4002.00 dir.	41.238300	41.238300	3.0	5.9

3		4002.00	slope	32.00480	32.00480	1.2	2.4
4		5014.00	zenit	101.721100	101.721100	2.1	4.1
5		5014.00	dir.	213.171000	213.171000	2.1	4.2
6		5014.00	slope	25.74730	25.74721	1.1	2.2
7		5014.00	zenit	101.721100	101.721100	2.1	4.1
8		5014.00	dir.	213.171000	213.171000	2.1	4.2
9		5014.00	slope	25.74730	25.74721	1.1	2.2
10		5017.00	zenit	100.222900	100.222908	2.1	4.1
11		5017.00	dir.	252.399900	252.399901	2.1	4.2
12		5017.00	slope	32.55240	32.55233	1.0	2.1
13		5017.00	zenit	100.222900	100.222908	2.1	4.1
14		5017.00	dir.	252.399900	252.399901	2.1	4.2
15		5017.00	slope	32.55240	32.55233	1.0	2.1
16		5016.00	zenit	99.719200	99.719177	1.9	3.7
17		5016.00	dir.	252.098600	252.098599	2.1	4.1
18		5016.00	slope	77.30050	77.30037	1.0	2.0
19		5016.00	zenit	99.719200	99.719177	1.9	3.7
20		5016.00	dir.	252.098600	252.098599	2.1	4.1
21		5016.00	slope	77.30050	77.30037	1.0	2.0
22		4003.00	zenit	96.690400	96.690398	2.1	4.1
23		4003.00	dir.	330.071100	330.071082	2.6	5.0
24		4003.00	slope	102.64970	102.64963	1.7	3.3
25		4004.00	zenit	96.412100	96.412111	0.8	1.5
26		4004.00	dir.	336.872600	336.872610	1.9	3.8
27		4004.00	slope	211.89950	211.89958	0.9	1.8
28		4004.00	zenit	96.412100	96.412111	0.8	1.5
29		4004.00	dir.	336.872600	336.872610	1.9	3.8
30		4004.00	slope	211.89950	211.89958	0.9	1.8
31		5003.00	zenit	96.593600	96.593645	1.6	3.1
32		5003.00	dir.	301.402500	301.402499	2.7	5.3
33		5003.00	slope	141.02100	141.02100	0.9	1.8
34	1502.00	4004.00	zenit	102.707600	102.707596	1.7	3.3
35		4004.00	dir.	49.563000	49.563001	1.7	3.4
36		4004.00	slope	37.63110	37.63099	0.6	1.2
37		4003.00	zenit	104.347500	104.347516	1.7	3.3
38		4003.00	dir.	123.002000	123.001983	1.9	3.7
39		4003.00	slope	120.19680	120.19697	1.6	3.1
40		4003.00	zenit	104.347500	104.347516	1.7	3.3
41		4003.00	dir.	123.002000	123.001983	1.9	3.7
42		4003.00	slope	120.19680	120.19697	1.6	3.1
43		4002.00	zenit	103.589200	103.589230	0.8	1.5
44		4002.00	dir.	117.681300	117.681300	2.0	4.0
45		4002.00	slope	232.01570	232.01577	1.1	2.1
46		4002.00	zenit	103.589200	103.589230	0.8	1.5
47		4002.00	dir.	117.681300	117.681300	2.0	4.0
48		4002.00	slope	232.01570	232.01577	1.1	2.1
49		5014.00	zenit	103.956000	103.956003	0.7	1.4
50		5014.00	dir.	133.286500	133.286503	2.0	3.9
51		5014.00	slope	229.17580	229.17577	1.0	1.9
52		5014.00	zenit	103.956000	103.956003	0.7	1.4
53		5014.00	dir.	133.286500	133.286503	2.0	3.9
54		5014.00	slope	229.17580	229.17577	1.0	1.9
55		5017.00	zenit	104.108600	104.108549	0.8	1.6
56		5017.00	dir.	135.285900	135.285904	2.0	4.0
57		5017.00	slope	211.65330	211.65335	0.9	1.8
58		5017.00	zenit	104.108600	104.108549	0.8	1.6
59		5017.00	dir.	135.285900	135.285904	2.0	4.0
60		5017.00	slope	211.65330	211.65335	0.9	1.8
61		5016.00	zenit	104.105800	104.105838	0.9	1.7
62		5016.00	dir.	148.861000	148.860993	1.9	3.7
63		5016.00	slope	204.73370	204.73375	0.9	1.7
64		5016.00	zenit	104.105800	104.105838	0.9	1.7
65		5016.00	dir.	148.861000	148.860993	1.9	3.7
66		5016.00	slope	204.73370	204.73375	0.9	1.7

67		5003.00	zenit	103.584000	103.583985	1.8	3.5
68		5003.00	dir.	159.882200	159.882205	2.0	3.9
69		5003.00	slope	106.52720	106.52719	1.0	1.9
70		5003.00	zenit	103.584000	103.583985	1.8	3.5
71		5003.00	dir.	159.882200	159.882205	2.0	3.9
72		5003.00	slope	106.52720	106.52719	1.0	1.9
73		4004.00	zenit	102.707600	102.707596	1.7	3.3
74		4004.00	dir.	49.563000	49.563001	1.7	3.4
75		4004.00	slope	37.63110	37.63099	0.6	1.2
76		4004.00	zenit	102.707600	102.707596	1.7	3.3
77		4004.00	dir.	49.563000	49.563001	1.7	3.4
78		4004.00	slope	37.63110	37.63099	0.6	1.2
79		4005.00	zenit	95.920200	95.920198	1.2	2.4
80		4005.00	dir.	367.507400	367.507366	1.7	3.4
81		4005.00	slope	133.17880	133.17873	1.1	2.2
82		4005.00	zenit	95.920200	95.920198	1.2	2.4
83		4005.00	dir.	367.507400	367.507366	1.7	3.4
84		4005.00	slope	133.17880	133.17873	1.1	2.2
85		5006.00	zenit	95.203000	95.203026	0.9	1.7
86		5006.00	dir.	356.456000	356.456013	1.4	2.7
87		5006.00	slope	199.76190	199.76179	1.1	2.1
88		5006.00	zenit	95.203000	95.203026	0.9	1.7
89		5006.00	dir.	356.456000	356.456013	1.4	2.7
90		5006.00	slope	199.76190	199.76179	1.1	2.1
91		4006.00	zenit	95.370100	95.370091	0.7	1.4
92		4006.00	dir.	371.491800	371.491818	1.2	2.4
93		4006.00	slope	248.11990	248.11998	1.2	2.4
94		4006.00	zenit	95.370100	95.370091	0.7	1.4
95		4006.00	dir.	371.491800	371.491818	1.2	2.4
96		4006.00	slope	248.11990	248.11998	1.2	2.4
97		5007.00	zenit	95.569700	95.569703	0.5	1.1
98		5007.00	dir.	378.904000	378.904013	1.4	2.7
99		5007.00	slope	332.50990	332.50981	1.1	2.1
100		5007.00	zenit	95.569700	95.569703	0.5	1.1
101		5007.00	dir.	378.904000	378.904013	1.4	2.7
102		5007.00	slope	332.50990	332.50981	1.1	2.1
103	1503.00	4005.00	zenit	104.929800	104.929804	2.0	4.0
104		4005.00	dir.	137.827200	137.827196	2.1	4.1
105		4005.00	slope	39.49060	39.49067	1.0	1.9
106		4004.00	zenit	105.028900	105.028921	1.0	1.9
107		4004.00	dir.	146.562800	146.562804	1.9	3.8
108		4004.00	slope	167.07170	167.07165	0.9	1.8
109		4004.00	zenit	105.028900	105.028921	1.0	1.9
110		4004.00	dir.	146.562800	146.562804	1.9	3.8
111		4004.00	slope	167.07170	167.07165	0.9	1.8
112		4003.00	zenit	104.545600	104.545532	0.9	1.7
113		4003.00	dir.	145.223600	145.223633	1.7	3.3
114		4003.00	slope	277.34500	277.34505	1.7	3.3
115		5016.00	zenit	104.237900	104.237914	0.5	1.0
116		5016.00	dir.	154.277200	154.277220	1.4	2.8
117		5016.00	slope	372.50510	372.50506	1.1	2.1
118		5016.00	zenit	104.237900	104.237914	0.5	1.0
119		5016.00	dir.	154.277200	154.277220	1.4	2.8
120		5016.00	slope	372.50510	372.50506	1.1	2.1
121		5003.00	zenit	104.058500	104.058495	0.8	1.7
122		5003.00	dir.	160.463000	160.462984	1.4	2.8
123		5003.00	slope	275.91670	275.91664	1.1	2.2
124		5003.00	zenit	104.058500	104.058495	0.8	1.7
125		5003.00	dir.	160.463000	160.462984	1.4	2.8
126		5003.00	slope	275.91670	275.91664	1.1	2.2
127		4005.00	zenit	104.929800	104.929804	2.0	4.0
128		4005.00	dir.	137.827200	137.827196	2.1	4.1
129		4005.00	slope	39.49060	39.49067	1.0	1.9
130		5006.00	zenit	93.303200	93.303210	2.8	5.4

131		5006.00	dir.	333.383200	333.383199	3.0	5.8
132		5006.00	slope	32.89550	32.89543	0.8	1.5
133		4006.00	zenit	95.215500	95.215486	1.5	2.9
134		4006.00	dir.	392.846300	392.846319	1.9	3.8
135		4006.00	slope	85.83710	85.83721	1.0	1.9
136		4006.00	zenit	95.215500	95.215486	1.5	2.9
137		4006.00	dir.	392.846300	392.846319	1.9	3.8
138		4006.00	slope	85.83710	85.83721	1.0	1.9
139		5007.00	zenit	95.831800	95.831784	0.8	1.6
140		5007.00	dir.	396.247000	396.246979	1.5	2.9
141		5007.00	slope	176.33350	176.33343	1.0	1.9
142		5007.00	zenit	95.831800	95.831784	0.8	1.6
143		5007.00	dir.	396.247000	396.246979	1.5	2.9
144		5007.00	slope	176.33350	176.33343	1.0	1.9
145		4007.00	zenit	95.665600	95.665597	0.7	1.4
146		4007.00	dir.	379.646000	379.645983	1.6	3.1
147		4007.00	slope	229.81890	229.81896	1.0	2.0
148		4007.00	zenit	95.665600	95.665597	0.7	1.4
149		4007.00	dir.	379.646000	379.645983	1.6	3.1
150		4007.00	slope	229.81890	229.81896	1.0	2.0
151	1504.00	4006.00	zenit	103.667800	103.667800	1.5	3.0
152		4006.00	dir.	168.077500	168.077509	1.7	3.3
153		4006.00	slope	63.00620	63.00610	1.0	2.0
154		5006.00	zenit	103.385000	103.384977	1.1	2.1
155		5006.00	dir.	194.096700	194.096703	1.7	3.2
156		5006.00	slope	124.54430	124.54433	0.8	1.6
157		5006.00	zenit	103.385000	103.384977	1.1	2.1
158		5006.00	dir.	194.096700	194.096703	1.7	3.2
159		5006.00	slope	124.54430	124.54433	0.8	1.6
160		5006.00	zenit	103.385000	103.384977	1.1	2.1
161		5006.00	dir.	194.096700	194.096703	1.7	3.2
162		5006.00	slope	124.54430	124.54433	0.8	1.6
163		4005.00	zenit	104.694700	104.694686	0.8	1.5
164		4005.00	dir.	173.262200	173.262170	1.8	3.5
165		4005.00	slope	178.18300	178.18308	1.1	2.1
166		4005.00	zenit	104.694700	104.694686	0.8	1.5
167		4005.00	dir.	173.262200	173.262170	1.8	3.5
168		4005.00	slope	178.18300	178.18308	1.1	2.1
169		4006.00	zenit	103.667800	103.667800	1.5	3.0
170		4006.00	dir.	168.077500	168.077509	1.7	3.3
171		4006.00	slope	63.00620	63.00610	1.0	2.0
172		4006.00	zenit	103.667800	103.667800	1.5	3.0
173		4006.00	dir.	168.077500	168.077509	1.7	3.3
174		4006.00	slope	63.00620	63.00610	1.0	2.0
175		5007.00	zenit	97.978400	97.978407	1.9	3.7
176		5007.00	dir.	44.160700	44.160699	2.1	4.1
177		5007.00	slope	46.11100	46.11099	0.6	1.1
178		5007.00	zenit	97.978400	97.978407	1.9	3.7
179		5007.00	dir.	44.160700	44.160699	2.1	4.1
180		5007.00	slope	46.11100	46.11099	0.6	1.1
181		4007.00	zenit	95.785400	95.785417	1.5	2.9
182		4007.00	dir.	374.895900	374.895901	2.0	4.0
183		4007.00	slope	84.07670	84.07677	0.8	1.5
184		4007.00	zenit	95.785400	95.785417	1.5	2.9
185		4007.00	dir.	374.895900	374.895901	2.0	4.0
186		4007.00	slope	84.07670	84.07677	0.8	1.5
187		4008.00	zenit	98.320100	98.320072	0.7	1.4
188		4008.00	dir.	6.205000	6.205019	1.6	3.2
189		4008.00	slope	204.69750	204.69759	1.0	1.9
190		4008.00	zenit	98.320100	98.320072	0.7	1.4
191		4008.00	dir.	6.205000	6.205019	1.6	3.2
192		4008.00	slope	204.69750	204.69759	1.0	1.9
193		5009.00	zenit	98.310700	98.310706	0.6	1.1
194		5009.00	dir.	18.476300	18.476288	1.7	3.4

195		5009.00	slope	264.16880	264.16881	1.0	1.9
196		5008.00	zenit	97.771900	97.771918	0.9	1.8
197		5008.00	dir.	19.051900	19.051900	2.1	4.1
198		5008.00	slope	133.88930	133.88932	0.9	1.7
199		5008.00	zenit	97.771900	97.771918	0.9	1.8
200		5008.00	dir.	19.051900	19.051900	2.1	4.1
201		5008.00	slope	133.88930	133.88932	0.9	1.7
202	1505.00	5008.00	zenit	100.360600	100.360596	2.1	4.1
203		5008.00	dir.	93.997500	93.997500	2.1	4.2
204		5008.00	slope	26.12950	26.12948	0.7	1.3
205		5007.00	zenit	102.346000	102.346006	1.2	2.4
206		5007.00	dir.	188.773600	188.773591	1.6	3.2
207		5007.00	slope	91.44220	91.44230	0.9	1.7
208		5007.00	zenit	102.346000	102.346006	1.2	2.4
209		5007.00	dir.	188.773600	188.773591	1.6	3.2
210		5007.00	slope	91.44220	91.44230	0.9	1.7
211		5007.00	zenit	102.346000	102.346006	1.2	2.4
212		5007.00	dir.	188.773600	188.773591	1.6	3.2
213		5007.00	slope	91.44220	91.44230	0.9	1.7
214		4006.00	zenit	102.968200	102.968235	0.8	1.5
215		4006.00	dir.	194.093600	194.093616	1.8	3.5
216		4006.00	slope	181.53520	181.53509	1.1	2.2
217		4006.00	zenit	102.968200	102.968235	0.8	1.5
218		4006.00	dir.	194.093600	194.093616	1.8	3.5
219		4006.00	slope	181.53520	181.53509	1.1	2.2
220		4007.00	zenit	99.299100	99.299087	1.7	3.3
221		4007.00	dir.	248.450500	248.450498	2.1	4.0
222		4007.00	slope	66.21800	66.21798	0.6	1.1
223		4007.00	zenit	99.299100	99.299087	1.7	3.3
224		4007.00	dir.	248.450500	248.450498	2.1	4.0
225		4007.00	slope	66.21800	66.21798	0.6	1.1
226		4008.00	zenit	99.539500	99.539508	1.5	3.0
227		4008.00	dir.	5.257200	5.257187	1.9	3.7
228		4008.00	slope	78.52460	78.52474	0.8	1.6
229		4008.00	zenit	99.539500	99.539508	1.5	3.0
230		4008.00	dir.	5.257200	5.257187	1.9	3.7
231		4008.00	slope	78.52460	78.52474	0.8	1.6
232		5008.00	zenit	100.360600	100.360596	2.1	4.1
233		5008.00	dir.	93.997500	93.997500	2.1	4.2
234		5008.00	slope	26.12950	26.12948	0.7	1.3
235		5009.00	zenit	99.024200	99.024196	0.9	1.8
236		5009.00	dir.	28.842000	28.842005	1.6	3.0
237		5009.00	slope	141.96940	141.96936	0.8	1.6
238		5009.00	zenit	99.024200	99.024196	0.9	1.8
239		5009.00	dir.	28.842000	28.842005	1.6	3.0
240		5009.00	slope	141.96940	141.96936	0.8	1.6
241		5010.00	zenit	100.001700	100.001669	0.7	1.4
242		5010.00	dir.	21.514000	21.513995	1.4	2.7
243		5010.00	slope	231.03880	231.03884	0.9	1.8
244		5010.00	zenit	100.001700	100.001669	0.7	1.4
245		5010.00	dir.	21.514000	21.513995	1.4	2.7
246		5010.00	slope	231.03880	231.03884	0.9	1.8
247		4009.00	zenit	100.367600	100.367620	0.8	1.5
248		4009.00	dir.	11.804700	11.804713	1.4	2.7
249		4009.00	slope	198.12360	198.12353	1.2	2.3
250		4009.00	zenit	100.367600	100.367620	0.8	1.5
251		4009.00	dir.	11.804700	11.804713	1.4	2.7
252		4009.00	slope	198.12360	198.12353	1.2	2.3
253	1506.00	5009.00	zenit	97.147700	97.147697	1.7	3.3
254		5009.00	dir.	75.862500	75.862500	1.7	3.4
255		5009.00	slope	31.25810	31.25822	0.5	0.9
256		4008.00	zenit	100.286200	100.286203	1.9	3.7
257		4008.00	dir.	239.077000	239.076995	2.1	4.0
258		4008.00	slope	46.26480	46.26466	0.8	1.5

259		4008.00	zenit	100.286200	100.286203	1.9	3.7
260		4008.00	dir.	239.077000	239.076995	2.1	4.0
261		4008.00	slope	46.26480	46.26466	0.8	1.5
262		4007.00	zenit	100.016400	100.016424	0.8	1.6
263		4007.00	dir.	228.509700	228.509716	1.6	3.1
264		4007.00	slope	181.96360	181.96344	0.9	1.7
265		4007.00	zenit	100.016400	100.016424	0.8	1.6
266		4007.00	dir.	228.509700	228.509716	1.6	3.1
267		4007.00	slope	181.96360	181.96344	0.9	1.7
268		5007.00	zenit	101.276200	101.276167	0.7	1.4
269		5007.00	dir.	205.269700	205.269713	1.6	3.1
270		5007.00	slope	206.78640	206.78645	1.0	2.0
271		5007.00	zenit	101.276200	101.276167	0.7	1.4
272		5007.00	dir.	205.269700	205.269713	1.6	3.1
273		5007.00	slope	206.78640	206.78645	1.0	2.0
274		5009.00	zenit	97.147700	97.147697	1.7	3.3
275		5009.00	dir.	75.862500	75.862500	1.7	3.4
276		5009.00	slope	31.25810	31.25822	0.5	0.9
277		5009.00	zenit	97.147700	97.147697	1.7	3.3
278		5009.00	dir.	75.862500	75.862500	1.7	3.4
279		5009.00	slope	31.25810	31.25822	0.5	0.9
280		5010.00	zenit	100.449400	100.449391	1.2	2.3
281		5010.00	dir.	25.673100	25.673113	1.9	3.7
282		5010.00	slope	110.78670	110.78680	0.7	1.4
283		5010.00	zenit	100.449400	100.449391	1.2	2.3
284		5010.00	dir.	25.673100	25.673113	1.9	3.7
285		5010.00	slope	110.78670	110.78680	0.7	1.4
286		5012.00	zenit	100.320700	100.320735	0.5	1.0
287		5012.00	dir.	395.732800	395.732763	1.3	2.6
288		5012.00	slope	313.60720	313.60725	1.1	2.2
289		5012.00	zenit	100.320700	100.320735	0.5	1.0
290		5012.00	dir.	395.732800	395.732763	1.3	2.6
291		5012.00	slope	313.60720	313.60725	1.1	2.2
292		4011.00	zenit	100.978300	100.978262	0.7	1.4
293		4011.00	dir.	373.860000	373.860004	1.5	3.0
294		4011.00	slope	303.72700	303.72695	1.1	2.2
295		4011.00	zenit	100.978300	100.978262	0.7	1.4
296		4011.00	dir.	373.860000	373.860004	1.5	3.0
297		4011.00	slope	303.72700	303.72695	1.1	2.2
298		4009.00	zenit	101.552400	101.552399	1.5	3.0
299		4009.00	dir.	2.752000	2.752003	1.8	3.6
300		4009.00	slope	78.74700	78.74694	1.1	2.1
301		4009.00	zenit	101.552400	101.552399	1.5	3.0
302		4009.00	dir.	2.752000	2.752003	1.8	3.6
303		4009.00	slope	78.74700	78.74694	1.1	2.1
304		6.00	zenit	100.681400	100.681443	0.7	1.3
305		6.00	dir.	6.771000	6.770995	1.3	2.5
306		6.00	slope	216.36900	216.36908	0.9	1.7
307		6.00	zenit	100.681400	100.681443	0.7	1.3
308		6.00	dir.	6.771000	6.770995	1.3	2.5
309		6.00	slope	216.36900	216.36908	0.9	1.7
310	1507.00	5010.00	zenit	99.872600	99.872609	1.9	3.7
311		5010.00	dir.	161.814300	161.814291	2.1	4.1
312		5010.00	slope	47.97230	47.97224	0.6	1.1
313		5009.00	zenit	98.889200	98.889214	0.9	1.8
314		5009.00	dir.	193.839100	193.839113	1.7	3.4
315		5009.00	slope	130.56770	130.56781	0.8	1.5
316		5009.00	zenit	98.889200	98.889214	0.9	1.8
317		5009.00	dir.	193.839100	193.839113	1.7	3.4
318		5009.00	slope	130.56770	130.56781	0.8	1.5
319		4008.00	zenit	99.768700	99.768685	0.7	1.4
320		4008.00	dir.	214.997800	214.997803	1.3	2.5
321		4008.00	slope	184.40890	184.40892	0.9	1.8
322		4008.00	zenit	99.768700	99.768685	0.7	1.4

323		4008.00	dir.	214.997800	214.997803	1.3	2.5
324		4008.00	slope	184.40890	184.40892	0.9	1.8
325		4007.00	zenit	99.834700	99.834660	0.5	1.0
326		4007.00	dir.	219.227900	219.227862	1.3	2.6
327		4007.00	slope	320.00100	320.00106	1.0	1.9
328		4007.00	zenit	99.834700	99.834660	0.5	1.0
329		4007.00	dir.	219.227900	219.227862	1.3	2.6
330		4007.00	slope	320.00100	320.00106	1.0	1.9
331		4009.00	zenit	101.033600	101.033612	1.7	3.3
332		4009.00	dir.	212.979000	212.979019	1.9	3.8
333		4009.00	slope	64.18250	64.18270	1.0	2.0
334		4009.00	zenit	101.033600	101.033612	1.7	3.3
335		4009.00	dir.	212.979000	212.979019	1.9	3.8
336		4009.00	slope	64.18250	64.18270	1.0	2.0
337		5011.00	zenit	100.608500	100.608499	1.2	2.3
338		5011.00	dir.	355.526500	355.526499	2.1	4.1
339		5011.00	slope	114.77230	114.77223	0.7	1.4
340		5011.00	zenit	100.608500	100.608499	1.2	2.3
341		5011.00	dir.	355.526500	355.526499	2.1	4.1
342		5011.00	slope	114.77230	114.77223	0.7	1.4
343		5010.00	zenit	99.872600	99.872609	1.9	3.7
344		5010.00	dir.	161.814300	161.814291	2.1	4.1
345		5010.00	slope	47.97230	47.97224	0.6	1.1
346		5012.00	zenit	100.254700	100.254718	0.8	1.6
347		5012.00	dir.	386.323400	386.323424	1.8	3.5
348		5012.00	slope	175.43830	175.43816	1.2	2.3
349		5012.00	zenit	100.254700	100.254718	0.8	1.6
350		5012.00	dir.	386.323400	386.323424	1.8	3.5
351		5012.00	slope	175.43830	175.43816	1.2	2.3
352		4011.00	zenit	101.242200	101.242250	1.1	2.1
353		4011.00	dir.	349.845800	349.845786	1.7	3.4
354		4011.00	slope	194.18860	194.18842	1.1	2.2
355		4011.00	zenit	101.242200	101.242250	1.1	2.1
356		4011.00	dir.	349.845800	349.845786	1.7	3.4
357		4011.00	slope	194.18860	194.18842	1.1	2.2
358		6.00	zenit	101.238100	101.238053	1.6	3.1
359		6.00	dir.	5.667400	5.667403	2.0	4.0
360		6.00	slope	73.94580	73.94571	0.7	1.3
361		6.00	zenit	101.238100	101.238053	1.6	3.1
362		6.00	dir.	5.667400	5.667403	2.0	4.0
363		6.00	slope	73.94580	73.94571	0.7	1.3
364	1508.00	4009.00	zenit	100.134500	100.134469	0.8	1.5
365		4009.00	dir.	192.090400	192.090378	1.3	2.5
366		4009.00	slope	176.13910	176.13924	1.1	2.1
367		4008.00	zenit	99.707200	99.707215	0.5	1.0
368		4008.00	dir.	201.796700	201.796704	1.2	2.4
369		4008.00	slope	291.36910	291.36903	1.0	1.9
370		4008.00	zenit	99.707200	99.707215	0.5	1.0
371		4008.00	dir.	201.796700	201.796704	1.2	2.4
372		4008.00	slope	291.36910	291.36903	1.0	1.9
373		5009.00	zenit	99.238600	99.238607	0.6	1.1
374		5009.00	dir.	187.671400	187.671380	1.3	2.5
375		5009.00	slope	246.49810	246.49814	0.8	1.6
376		5009.00	zenit	99.238600	99.238607	0.6	1.1
377		5009.00	dir.	187.671400	187.671380	1.3	2.5
378		5009.00	slope	246.49810	246.49814	0.8	1.6
379		5010.00	zenit	99.702100	99.702102	0.8	1.6
380		5010.00	dir.	175.311300	175.311342	1.5	2.9
381		5010.00	slope	163.69140	163.69132	0.8	1.6
382		5010.00	zenit	99.702100	99.702102	0.8	1.6
383		5010.00	dir.	175.311300	175.311342	1.5	2.9
384		5010.00	slope	163.69140	163.69132	0.8	1.6
385		4009.00	zenit	100.134500	100.134469	0.8	1.5
386		4009.00	dir.	192.090400	192.090378	1.3	2.5

387	4009.00	slope	176.13910	176.13924	1.1	2.1
388	4009.00	zenit	100.134500	100.134469	0.8	1.5
389	4009.00	dir.	192.090400	192.090378	1.3	2.5
390	4009.00	slope	176.13910	176.13924	1.1	2.1
391	5012.00	zenit	100.034200	100.034191	1.9	3.7
392	5012.00	dir.	397.240800	397.240799	2.1	4.1
393	5012.00	slope	59.52390	59.52386	1.2	2.3
394	5012.00	zenit	100.034200	100.034191	1.9	3.7
395	5012.00	dir.	397.240800	397.240799	2.1	4.1
396	5012.00	slope	59.52390	59.52386	1.2	2.3
397	4011.00	zenit	101.876300	101.876286	1.8	3.5
398	4011.00	dir.	315.197500	315.197508	2.0	4.0
399	4011.00	slope	105.84330	105.84324	1.0	2.0
400	4011.00	zenit	101.876300	101.876286	1.8	3.5
401	4011.00	dir.	315.197500	315.197508	2.0	4.0
402	4011.00	slope	105.84330	105.84324	1.0	2.0
403	5011.00	zenit	100.593400	100.593401	2.0	3.9
404	5011.00	dir.	264.810500	264.810501	2.1	4.1
405	5011.00	slope	45.81430	45.81423	0.6	1.1
406	5011.00	zenit	100.593400	100.593401	2.0	3.9
407	5011.00	dir.	264.810500	264.810501	2.1	4.1
408	5011.00	slope	45.81430	45.81423	0.6	1.1
409	6.00	zenit	100.866900	100.866924	1.8	3.6
410	6.00	dir.	147.527200	147.527201	2.1	4.1
411	6.00	slope	56.39780	56.39775	0.6	1.2
412	6.00	zenit	100.866900	100.866924	1.8	3.6
413	6.00	dir.	147.527200	147.527201	2.1	4.1
414	6.00	slope	56.39780	56.39775	0.6	1.2

Residuals and analysis of observations

i	standpoint	target	f[%]	v	v'	e-obs.	e-adj.
=====				[mm cc]	=====	[mm cc]	=====
1	1501.00	4002.00 zenit	1.7 w	-0.084	0.2		
2		4002.00 dir.	0.2 w	-0.000	0.0		
3		4002.00 slope	59.6	-0.004	0.0	-0.0	-0.0
4		5014.00 zenit	29.7	-0.003	0.0	-0.0	-0.0
5		5014.00 dir.	29.3	-0.002	0.0	-0.0	-0.0
6		5014.00 slope	62.6	-0.089	0.0	-0.1	-0.0
7		5014.00 zenit	29.7	-0.003	0.0	-0.0	-0.0
8		5014.00 dir.	29.3	-0.002	0.0	-0.0	-0.0
9		5014.00 slope	62.6	-0.089	0.0	-0.1	-0.0
10		5017.00 zenit	30.0	0.077	0.0	0.2	0.1
11		5017.00 dir.	29.4	0.008	0.0	0.0	0.0
12		5017.00 slope	65.9	-0.068	0.0	-0.1	-0.0
13		5017.00 zenit	30.0	0.077	0.0	0.2	0.1
14		5017.00 dir.	29.4	0.008	0.0	0.0	0.0
15		5017.00 slope	65.9	-0.068	0.0	-0.1	-0.0
16		5016.00 zenit	37.8	-0.226	0.1	-0.4	-0.1
17		5016.00 dir.	30.0	-0.013	0.0	-0.0	-0.0
18		5016.00 slope	68.0	-0.126	0.0	-0.1	-0.0
19		5016.00 zenit	37.8	-0.226	0.1	-0.4	-0.1
20		5016.00 dir.	30.0	-0.013	0.0	-0.0	-0.0
21		5016.00 slope	68.0	-0.126	0.0	-0.1	-0.0
22		4003.00 zenit	30.5	-0.023	0.0	-0.0	-0.0
23		4003.00 dir.	14.4	-0.175	0.1	-0.7	-0.5
24		4003.00 slope	47.9	-0.070	0.0	-0.1	-0.0
25		4004.00 zenit	73.7	0.108	0.0	0.1	0.0
26		4004.00 dir.	35.3	0.101	0.0	0.2	0.1
27		4004.00 slope	73.8	0.076	0.0	0.1	0.0
28		4004.00 zenit	73.7	0.108	0.0	0.1	0.0

29		4004.00	dir.	35.3	0.101	0.0	0.2	0.1
30		4004.00	slope	73.8	0.076	0.0	0.1	0.0
31		5003.00	zenit	46.5	0.452	0.2	0.6	0.2
32		5003.00	dir.	9.4	-0.012	0.0	-0.1	-0.1
33		5003.00	slope	71.5	-0.000	0.0	-0.0	-0.0
34	1502.00	4004.00	zenit	43.5	-0.043	0.0	-0.1	-0.0
35		4004.00	dir.	42.4	0.009	0.0	0.0	0.0
36		4004.00	slope	79.4	-0.108	0.0	-0.1	-0.0
37		4003.00	zenit	44.1	0.159	0.1	0.2	0.1
38		4003.00	dir.	36.4	-0.174	0.1	-0.3	-0.1
39		4003.00	slope	51.4	0.166	0.1	0.2	0.1
40		4003.00	zenit	44.1	0.159	0.1	0.2	0.1
41		4003.00	dir.	36.4	-0.174	0.1	-0.3	-0.1
42		4003.00	slope	51.4	0.166	0.1	0.2	0.1
43		4002.00	zenit	74.0	0.303	0.1	0.3	0.0
44		4002.00	dir.	31.7	-0.004	0.0	-0.0	-0.0
45		4002.00	slope	69.2	0.072	0.0	0.1	0.0
46		4002.00	zenit	74.0	0.303	0.1	0.3	0.0
47		4002.00	dir.	31.7	-0.004	0.0	-0.0	-0.0
48		4002.00	slope	69.2	0.072	0.0	0.1	0.0
49		5014.00	zenit	75.9	0.032	0.0	0.0	0.0
50		5014.00	dir.	33.0	0.035	0.0	0.1	0.0
51		5014.00	slope	71.3	-0.029	0.0	-0.0	-0.0
52		5014.00	zenit	75.9	0.032	0.0	0.0	0.0
53		5014.00	dir.	33.0	0.035	0.0	0.1	0.0
54		5014.00	slope	71.3	-0.029	0.0	-0.0	-0.0
55		5017.00	zenit	73.3	-0.505	0.2	-0.5	-0.0
56		5017.00	dir.	32.6	0.037	0.0	0.1	0.0
57		5017.00	slope	73.6	0.048	0.0	0.1	0.0
58		5017.00	zenit	73.3	-0.505	0.2	-0.5	-0.0
59		5017.00	dir.	32.6	0.037	0.0	0.1	0.0
60		5017.00	slope	73.6	0.048	0.0	0.1	0.0
61		5016.00	zenit	71.5	0.379	0.1	0.4	0.0
62		5016.00	dir.	37.6	-0.067	0.0	-0.1	-0.0
63		5016.00	slope	73.9	0.053	0.0	0.1	0.0
64		5016.00	zenit	71.5	0.379	0.1	0.4	0.0
65		5016.00	dir.	37.6	-0.067	0.0	-0.1	-0.0
66		5016.00	slope	73.9	0.053	0.0	0.1	0.0
67		5003.00	zenit	39.7	-0.151	0.1	-0.2	-0.1
68		5003.00	dir.	32.8	0.052	0.0	0.1	0.0
69		5003.00	slope	69.1	-0.007	0.0	-0.0	-0.0
70		5003.00	zenit	39.7	-0.151	0.1	-0.2	-0.1
71		5003.00	dir.	32.8	0.052	0.0	0.1	0.0
72		5003.00	slope	69.1	-0.007	0.0	-0.0	-0.0
73		4004.00	zenit	43.5	-0.043	0.0	-0.1	-0.0
74		4004.00	dir.	42.4	0.009	0.0	0.0	0.0
75		4004.00	slope	79.4	-0.108	0.0	-0.1	-0.0
76		4004.00	zenit	43.5	-0.043	0.0	-0.1	-0.0
77		4004.00	dir.	42.4	0.009	0.0	0.0	0.0
78		4004.00	slope	79.4	-0.108	0.0	-0.1	-0.0
79		4005.00	zenit	59.0	-0.020	0.0	-0.0	-0.0
80		4005.00	dir.	42.5	-0.340	0.1	-0.5	-0.2
81		4005.00	slope	65.2	-0.070	0.0	-0.1	-0.0
82		4005.00	zenit	59.0	-0.020	0.0	-0.0	-0.0
83		4005.00	dir.	42.5	-0.340	0.1	-0.5	-0.2
84		4005.00	slope	65.2	-0.070	0.0	-0.1	-0.0
85		5006.00	zenit	71.5	0.263	0.1	0.3	0.0
86		5006.00	dir.	54.1	0.132	0.0	0.2	0.0
87		5006.00	slope	68.7	-0.110	0.0	-0.1	-0.0
88		5006.00	zenit	71.5	0.263	0.1	0.3	0.0
89		5006.00	dir.	54.1	0.132	0.0	0.2	0.0
90		5006.00	slope	68.7	-0.110	0.0	-0.1	-0.0
91		4006.00	zenit	76.0	-0.091	0.0	-0.1	-0.0
92		4006.00	dir.	59.2	0.183	0.1	0.2	0.0

93		4006.00	slope	65.5	0.081	0.0	0.1	0.0
94		4006.00	zenit	76.0	-0.091	0.0	-0.1	-0.0
95		4006.00	dir.	59.2	0.183	0.1	0.2	0.0
96		4006.00	slope	65.5	0.081	0.0	0.1	0.0
97		5007.00	zenit	81.7	0.028	0.0	0.0	0.0
98		5007.00	dir.	54.2	0.134	0.1	0.2	0.0
99		5007.00	slope	70.4	-0.086	0.0	-0.1	-0.0
100		5007.00	zenit	81.7	0.028	0.0	0.0	0.0
101		5007.00	dir.	54.2	0.134	0.1	0.2	0.0
102		5007.00	slope	70.4	-0.086	0.0	-0.1	-0.0
103	1503.00	4005.00	zenit	32.6	0.037	0.0	0.1	0.0
104		4005.00	dir.	30.1	-0.038	0.0	-0.1	-0.0
105		4005.00	slope	68.7	0.072	0.0	0.1	0.0
106		4004.00	zenit	67.2	0.206	0.1	0.2	0.0
107		4004.00	dir.	35.1	0.045	0.0	0.1	0.0
108		4004.00	slope	72.8	-0.046	0.0	-0.1	-0.0
109		4004.00	zenit	67.2	0.206	0.1	0.2	0.0
110		4004.00	dir.	35.1	0.045	0.0	0.1	0.0
111		4004.00	slope	72.8	-0.046	0.0	-0.1	-0.0
112		4003.00	zenit	71.1	-0.680	0.2	-0.7	-0.1
113		4003.00	dir.	44.3	0.326	0.1	0.5	0.1
114		4003.00	slope	53.2	0.052	0.0	0.1	0.0
115		5016.00	zenit	83.3	0.140	0.0	0.1	0.0
116		5016.00	dir.	51.9	0.196	0.1	0.3	0.1
117		5016.00	slope	71.8	-0.042	0.0	-0.0	-0.0
118		5016.00	zenit	83.3	0.140	0.0	0.1	0.0
119		5016.00	dir.	51.9	0.196	0.1	0.3	0.1
120		5016.00	slope	71.8	-0.042	0.0	-0.0	-0.0
121		5003.00	zenit	71.9	-0.049	0.0	-0.1	-0.0
122		5003.00	dir.	51.9	-0.159	0.1	-0.2	-0.0
123		5003.00	slope	67.7	-0.062	0.0	-0.1	-0.0
124		5003.00	zenit	71.9	-0.049	0.0	-0.1	-0.0
125		5003.00	dir.	51.9	-0.159	0.1	-0.2	-0.0
126		5003.00	slope	67.7	-0.062	0.0	-0.1	-0.0
127		4005.00	zenit	32.6	0.037	0.0	0.1	0.0
128		4005.00	dir.	30.1	-0.038	0.0	-0.1	-0.0
129		4005.00	slope	68.7	0.072	0.0	0.1	0.0
130		5006.00	zenit	7.9	0.099	0.1	0.6	0.6
131		5006.00	dir.	1.2	-0.015	0.0		
132		5006.00	slope	75.0	-0.066	0.0	-0.1	-0.0
133		4006.00	zenit	50.3	-0.138	0.1	-0.2	-0.0
134		4006.00	dir.	35.7	0.187	0.1	0.3	0.1
135		4006.00	slope	68.7	0.109	0.0	0.1	0.0
136		4006.00	zenit	50.3	-0.138	0.1	-0.2	-0.0
137		4006.00	dir.	35.7	0.187	0.1	0.3	0.1
138		4006.00	slope	68.7	0.109	0.0	0.1	0.0
139		5007.00	zenit	73.4	-0.160	0.1	-0.2	-0.0
140		5007.00	dir.	50.0	-0.215	0.1	-0.3	-0.1
141		5007.00	slope	71.0	-0.074	0.0	-0.1	-0.0
142		5007.00	zenit	73.4	-0.160	0.1	-0.2	-0.0
143		5007.00	dir.	50.0	-0.215	0.1	-0.3	-0.1
144		5007.00	slope	71.0	-0.074	0.0	-0.1	-0.0
145		4007.00	zenit	76.5	-0.027	0.0	-0.0	-0.0
146		4007.00	dir.	46.6	-0.171	0.1	-0.2	-0.1
147		4007.00	slope	71.2	0.064	0.0	0.1	0.0
148		4007.00	zenit	76.5	-0.027	0.0	-0.0	-0.0
149		4007.00	dir.	46.6	-0.171	0.1	-0.2	-0.1
150		4007.00	slope	71.2	0.064	0.0	0.1	0.0
151	1504.00	4006.00	zenit	49.2	0.003	0.0	0.0	0.0
152		4006.00	dir.	44.2	0.086	0.0	0.1	0.0
153		4006.00	slope	67.9	-0.096	0.0	-0.1	-0.0
154		5006.00	zenit	63.6	-0.235	0.1	-0.3	-0.0
155		5006.00	dir.	44.7	0.029	0.0	0.0	0.0
156		5006.00	slope	75.2	0.033	0.0	0.0	0.0

157		5006.00	zenit	63.6	-0.235	0.1	-0.3	-0.0
158		5006.00	dir.	44.7	0.029	0.0	0.0	0.0
159		5006.00	slope	75.2	0.033	0.0	0.0	0.0
160		5006.00	zenit	63.6	-0.235	0.1	-0.3	-0.0
161		5006.00	dir.	44.7	0.029	0.0	0.0	0.0
162		5006.00	slope	75.2	0.033	0.0	0.0	0.0
163		4005.00	zenit	73.8	-0.145	0.0	-0.2	-0.0
164		4005.00	dir.	40.8	-0.300	0.1	-0.5	-0.2
165		4005.00	slope	67.4	0.077	0.0	0.1	0.0
166		4005.00	zenit	73.8	-0.145	0.0	-0.2	-0.0
167		4005.00	dir.	40.8	-0.300	0.1	-0.5	-0.2
168		4005.00	slope	67.4	0.077	0.0	0.1	0.0
169		4006.00	zenit	49.2	0.003	0.0	0.0	0.0
170		4006.00	dir.	44.2	0.086	0.0	0.1	0.0
171		4006.00	slope	67.9	-0.096	0.0	-0.1	-0.0
172		4006.00	zenit	49.2	0.003	0.0	0.0	0.0
173		4006.00	dir.	44.2	0.086	0.0	0.1	0.0
174		4006.00	slope	67.9	-0.096	0.0	-0.1	-0.0
175		5007.00	zenit	37.8	0.067	0.0	0.1	0.0
176		5007.00	dir.	30.0	-0.007	0.0	-0.0	-0.0
177		5007.00	slope	81.3	-0.010	0.0	-0.0	-0.0
178		5007.00	zenit	37.8	0.067	0.0	0.1	0.0
179		5007.00	dir.	30.0	-0.007	0.0	-0.0	-0.0
180		5007.00	slope	81.3	-0.010	0.0	-0.0	-0.0
181		4007.00	zenit	50.9	0.171	0.1	0.2	0.1
182		4007.00	dir.	32.5	0.008	0.0	0.0	0.0
183		4007.00	slope	75.9	0.070	0.0	0.1	0.0
184		4007.00	zenit	50.9	0.171	0.1	0.2	0.1
185		4007.00	dir.	32.5	0.008	0.0	0.0	0.0
186		4007.00	slope	75.9	0.070	0.0	0.1	0.0
187		4008.00	zenit	76.2	-0.281	0.1	-0.3	-0.0
188		4008.00	dir.	45.2	0.190	0.1	0.3	0.1
189		4008.00	slope	71.2	0.085	0.0	0.1	0.0
190		4008.00	zenit	76.2	-0.281	0.1	-0.3	-0.0
191		4008.00	dir.	45.2	0.190	0.1	0.3	0.1
192		4008.00	slope	71.2	0.085	0.0	0.1	0.0
193		5009.00	zenit	81.0	0.060	0.0	0.1	0.0
194		5009.00	dir.	42.9	-0.125	0.1	-0.2	-0.1
195		5009.00	slope	72.4	0.007	0.0	0.0	0.0
196		5008.00	zenit	70.0	0.181	0.1	0.2	0.0
197		5008.00	dir.	31.1	-0.001	0.0	-0.0	-0.0
198		5008.00	slope	73.1	0.024	0.0	0.0	0.0
199		5008.00	zenit	70.0	0.181	0.1	0.2	0.0
200		5008.00	dir.	31.1	-0.001	0.0	-0.0	-0.0
201		5008.00	slope	73.1	0.024	0.0	0.0	0.0
202	1505.00	5008.00	zenit	30.4	-0.035	0.0	-0.1	-0.0
203		5008.00	dir.	29.3	0.002	0.0	0.0	0.0
204		5008.00	slope	78.7	-0.019	0.0	-0.0	-0.0
205		5007.00	zenit	58.9	0.058	0.0	0.1	0.0
206		5007.00	dir.	45.8	-0.092	0.0	-0.1	-0.0
207		5007.00	slope	73.3	0.101	0.0	0.1	0.0
208		5007.00	zenit	58.9	0.058	0.0	0.1	0.0
209		5007.00	dir.	45.8	-0.092	0.0	-0.1	-0.0
210		5007.00	slope	73.3	0.101	0.0	0.1	0.0
211		5007.00	zenit	58.9	0.058	0.0	0.1	0.0
212		5007.00	dir.	45.8	-0.092	0.0	-0.1	-0.0
213		5007.00	slope	73.3	0.101	0.0	0.1	0.0
214		4006.00	zenit	74.7	0.350	0.1	0.4	0.0
215		4006.00	dir.	40.8	0.160	0.1	0.2	0.1
216		4006.00	slope	66.7	-0.110	0.0	-0.1	-0.0
217		4006.00	zenit	74.7	0.350	0.1	0.4	0.0
218		4006.00	dir.	40.8	0.160	0.1	0.2	0.1
219		4006.00	slope	66.7	-0.110	0.0	-0.1	-0.0
220		4007.00	zenit	43.5	-0.131	0.1	-0.2	-0.1

221		4007.00	dir.	31.2	-0.024	0.0	-0.0	-0.0
222		4007.00	slope	81.3	-0.019	0.0	-0.0	-0.0
223		4007.00	zenit	43.5	-0.131	0.1	-0.2	-0.1
224		4007.00	dir.	31.2	-0.024	0.0	-0.0	-0.0
225		4007.00	slope	81.3	-0.019	0.0	-0.0	-0.0
226		4008.00	zenit	48.7	0.082	0.0	0.1	0.0
227		4008.00	dir.	36.6	-0.129	0.1	-0.2	-0.1
228		4008.00	slope	74.8	0.142	0.0	0.2	0.0
229		4008.00	zenit	48.7	0.082	0.0	0.1	0.0
230		4008.00	dir.	36.6	-0.129	0.1	-0.2	-0.1
231		4008.00	slope	74.8	0.142	0.0	0.2	0.0
232		5008.00	zenit	30.4	-0.035	0.0	-0.1	-0.0
233		5008.00	dir.	29.3	0.002	0.0	0.0	0.0
234		5008.00	slope	78.7	-0.019	0.0	-0.0	-0.0
235		5009.00	zenit	69.6	-0.035	0.0	-0.0	-0.0
236		5009.00	dir.	48.2	0.046	0.0	0.1	0.0
237		5009.00	slope	74.6	-0.036	0.0	-0.0	-0.0
238		5009.00	zenit	69.6	-0.035	0.0	-0.0	-0.0
239		5009.00	dir.	48.2	0.046	0.0	0.1	0.0
240		5009.00	slope	74.6	-0.036	0.0	-0.0	-0.0
241		5010.00	zenit	76.9	-0.314	0.1	-0.3	-0.0
242		5010.00	dir.	54.8	-0.051	0.0	-0.1	-0.0
243		5010.00	slope	73.6	0.042	0.0	0.0	0.0
244		5010.00	zenit	76.9	-0.314	0.1	-0.3	-0.0
245		5010.00	dir.	54.8	-0.051	0.0	-0.1	-0.0
246		5010.00	slope	73.6	0.042	0.0	0.0	0.0
247		4009.00	zenit	74.0	0.201	0.1	0.2	0.0
248		4009.00	dir.	53.6	0.134	0.1	0.2	0.0
249		4009.00	slope	65.1	-0.071	0.0	-0.1	-0.0
250		4009.00	zenit	74.0	0.201	0.1	0.2	0.0
251		4009.00	dir.	53.6	0.134	0.1	0.2	0.0
252		4009.00	slope	65.1	-0.071	0.0	-0.1	-0.0
253	1506.00	5009.00	zenit	44.1	-0.026	0.0	-0.0	-0.0
254		5009.00	dir.	42.5	-0.004	0.0	-0.0	-0.0
255		5009.00	slope	84.2	0.116	0.0	0.1	0.0
256		4008.00	zenit	36.8	0.029	0.0	0.0	0.0
257		4008.00	dir.	31.2	-0.048	0.0	-0.1	-0.0
258		4008.00	slope	75.2	-0.141	0.0	-0.2	-0.0
259		4008.00	zenit	36.8	0.029	0.0	0.0	0.0
260		4008.00	dir.	31.2	-0.048	0.0	-0.1	-0.0
261		4008.00	slope	75.2	-0.141	0.0	-0.2	-0.0
262		4007.00	zenit	72.5	0.242	0.1	0.3	0.0
263		4007.00	dir.	47.4	0.157	0.1	0.2	0.1
264		4007.00	slope	73.5	-0.156	0.0	-0.2	-0.0
265		4007.00	zenit	72.5	0.242	0.1	0.3	0.0
266		4007.00	dir.	47.4	0.157	0.1	0.2	0.1
267		4007.00	slope	73.5	-0.156	0.0	-0.2	-0.0
268		5007.00	zenit	76.0	-0.331	0.1	-0.4	-0.0
269		5007.00	dir.	46.6	0.125	0.0	0.2	0.1
270		5007.00	slope	70.0	0.047	0.0	0.1	0.0
271		5007.00	zenit	76.0	-0.331	0.1	-0.4	-0.0
272		5007.00	dir.	46.6	0.125	0.0	0.2	0.1
273		5007.00	slope	70.0	0.047	0.0	0.1	0.0
274		5009.00	zenit	44.1	-0.026	0.0	-0.0	-0.0
275		5009.00	dir.	42.5	-0.004	0.0	-0.0	-0.0
276		5009.00	slope	84.2	0.116	0.0	0.1	0.0
277		5009.00	zenit	44.1	-0.026	0.0	-0.0	-0.0
278		5009.00	dir.	42.5	-0.004	0.0	-0.0	-0.0
279		5009.00	slope	84.2	0.116	0.0	0.1	0.0
280		5010.00	zenit	61.1	-0.085	0.0	-0.1	-0.0
281		5010.00	dir.	36.4	0.134	0.1	0.2	0.1
282		5010.00	slope	78.2	0.103	0.0	0.1	0.0
283		5010.00	zenit	61.1	-0.085	0.0	-0.1	-0.0
284		5010.00	dir.	36.4	0.134	0.1	0.2	0.1

285		5010.00	slope	78.2	0.103	0.0	0.1	0.0
286		5012.00	zenit	83.2	0.354	0.1	0.4	0.0
287		5012.00	dir.	56.1	-0.372	0.1	-0.5	-0.1
288		5012.00	slope	68.9	0.054	0.0	0.1	0.0
289		5012.00	zenit	83.2	0.354	0.1	0.4	0.0
290		5012.00	dir.	56.1	-0.372	0.1	-0.5	-0.1
291		5012.00	slope	68.9	0.054	0.0	0.1	0.0
292		4011.00	zenit	75.9	-0.383	0.1	-0.4	-0.0
293		4011.00	dir.	48.4	0.035	0.0	0.0	0.0
294		4011.00	slope	69.3	-0.045	0.0	-0.0	-0.0
295		4011.00	zenit	75.9	-0.383	0.1	-0.4	-0.0
296		4011.00	dir.	48.4	0.035	0.0	0.0	0.0
297		4011.00	slope	69.3	-0.045	0.0	-0.0	-0.0
298		4009.00	zenit	49.3	-0.015	0.0	-0.0	-0.0
299		4009.00	dir.	39.2	0.029	0.0	0.0	0.0
300		4009.00	slope	66.6	-0.064	0.0	-0.1	-0.0
301		4009.00	zenit	49.3	-0.015	0.0	-0.0	-0.0
302		4009.00	dir.	39.2	0.029	0.0	0.0	0.0
303		4009.00	slope	66.6	-0.064	0.0	-0.1	-0.0
304		6.00	zenit	77.5	0.431	0.1	0.5	0.0
305		6.00	dir.	56.9	-0.054	0.0	-0.1	-0.0
306		6.00	slope	75.2	0.077	0.0	0.1	0.0
307		6.00	zenit	77.5	0.431	0.1	0.5	0.0
308		6.00	dir.	56.9	-0.054	0.0	-0.1	-0.0
309		6.00	slope	75.2	0.077	0.0	0.1	0.0
310	1507.00	5010.00	zenit	36.4	0.095	0.0	0.2	0.1
311		5010.00	dir.	30.8	-0.087	0.0	-0.2	-0.1
312		5010.00	slope	81.4	-0.064	0.0	-0.1	-0.0
313		5009.00	zenit	69.0	0.142	0.0	0.2	0.0
314		5009.00	dir.	42.5	0.130	0.1	0.2	0.1
315		5009.00	slope	76.7	0.105	0.0	0.1	0.0
316		5009.00	zenit	69.0	0.142	0.0	0.2	0.0
317		5009.00	dir.	42.5	0.130	0.1	0.2	0.1
318		5009.00	slope	76.7	0.105	0.0	0.1	0.0
319		4008.00	zenit	76.0	-0.147	0.1	-0.2	-0.0
320		4008.00	dir.	57.5	0.029	0.0	0.0	0.0
321		4008.00	slope	73.5	0.015	0.0	0.0	0.0
322		4008.00	zenit	76.0	-0.147	0.1	-0.2	-0.0
323		4008.00	dir.	57.5	0.029	0.0	0.0	0.0
324		4008.00	slope	73.5	0.015	0.0	0.0	0.0
325		4007.00	zenit	82.3	-0.397	0.1	-0.4	-0.0
326		4007.00	dir.	55.7	-0.381	0.1	-0.5	-0.1
327		4007.00	slope	72.8	0.061	0.0	0.1	0.0
328		4007.00	zenit	82.3	-0.397	0.1	-0.4	-0.0
329		4007.00	dir.	55.7	-0.381	0.1	-0.5	-0.1
330		4007.00	slope	72.8	0.061	0.0	0.1	0.0
331		4009.00	zenit	43.6	0.117	0.0	0.2	0.1
332		4009.00	dir.	36.2	0.190	0.1	0.3	0.1
333		4009.00	slope	67.8	0.199	0.1	0.2	0.0
334		4009.00	zenit	43.6	0.117	0.0	0.2	0.1
335		4009.00	dir.	36.2	0.190	0.1	0.3	0.1
336		4009.00	slope	67.8	0.199	0.1	0.2	0.0
337		5011.00	zenit	61.5	-0.014	0.0	-0.0	-0.0
338		5011.00	dir.	30.3	-0.013	0.0	-0.0	-0.0
339		5011.00	slope	77.9	-0.073	0.0	-0.1	-0.0
340		5011.00	zenit	61.5	-0.014	0.0	-0.0	-0.0
341		5011.00	dir.	30.3	-0.013	0.0	-0.0	-0.0
342		5011.00	slope	77.9	-0.073	0.0	-0.1	-0.0
343		5010.00	zenit	36.4	0.095	0.0	0.2	0.1
344		5010.00	dir.	30.8	-0.087	0.0	-0.2	-0.1
345		5010.00	slope	81.4	-0.064	0.0	-0.1	-0.0
346		5012.00	zenit	72.7	0.177	0.1	0.2	0.0
347		5012.00	dir.	41.3	0.244	0.1	0.4	0.1
348		5012.00	slope	64.8	-0.144	0.0	-0.2	-0.0

349		5012.00	zenit	72.7	0.177	0.1	0.2	0.0
350		5012.00	dir.	41.3	0.244	0.1	0.4	0.1
351		5012.00	slope	64.8	-0.144	0.0	-0.2	-0.0
352		4011.00	zenit	64.6	0.503	0.2	0.6	0.1
353		4011.00	dir.	42.8	-0.145	0.1	-0.2	-0.1
354		4011.00	slope	67.1	-0.184	0.1	-0.2	-0.0
355		4011.00	zenit	64.6	0.503	0.2	0.6	0.1
356		4011.00	dir.	42.8	-0.145	0.1	-0.2	-0.1
357		4011.00	slope	67.1	-0.184	0.1	-0.2	-0.0
358		6.00	zenit	47.5	-0.468	0.2	-0.6	-0.2
359		6.00	dir.	32.7	0.034	0.0	0.1	0.0
360		6.00	slope	79.2	-0.087	0.0	-0.1	-0.0
361		6.00	zenit	47.5	-0.468	0.2	-0.6	-0.2
362		6.00	dir.	32.7	0.034	0.0	0.1	0.0
363		6.00	slope	79.2	-0.087	0.0	-0.1	-0.0
364	1508.00	4009.00	zenit	73.9	-0.313	0.1	-0.3	-0.0
365		4009.00	dir.	57.1	-0.225	0.1	-0.3	-0.1
366		4009.00	slope	67.6	0.139	0.0	0.2	0.0
367		4008.00	zenit	82.8	0.147	0.0	0.2	0.0
368		4008.00	dir.	59.5	0.036	0.0	0.0	0.0
369		4008.00	slope	73.2	-0.071	0.0	-0.1	-0.0
370		4008.00	zenit	82.8	0.147	0.0	0.2	0.0
371		4008.00	dir.	59.5	0.036	0.0	0.0	0.0
372		4008.00	slope	73.2	-0.071	0.0	-0.1	-0.0
373		5009.00	zenit	80.8	0.075	0.0	0.1	0.0
374		5009.00	dir.	58.0	-0.202	0.1	-0.2	-0.0
375		5009.00	slope	76.2	0.044	0.0	0.0	0.0
376		5009.00	zenit	80.8	0.075	0.0	0.1	0.0
377		5009.00	dir.	58.0	-0.202	0.1	-0.2	-0.0
378		5009.00	slope	76.2	0.044	0.0	0.0	0.0
379		5010.00	zenit	72.6	0.024	0.0	0.0	0.0
380		5010.00	dir.	51.2	0.422	0.2	0.6	0.1
381		5010.00	slope	76.2	-0.082	0.0	-0.1	-0.0
382		5010.00	zenit	72.6	0.024	0.0	0.0	0.0
383		5010.00	dir.	51.2	0.422	0.2	0.6	0.1
384		5010.00	slope	76.2	-0.082	0.0	-0.1	-0.0
385		4009.00	zenit	73.9	-0.313	0.1	-0.3	-0.0
386		4009.00	dir.	57.1	-0.225	0.1	-0.3	-0.1
387		4009.00	slope	67.6	0.139	0.0	0.2	0.0
388		4009.00	zenit	73.9	-0.313	0.1	-0.3	-0.0
389		4009.00	dir.	57.1	-0.225	0.1	-0.3	-0.1
390		4009.00	slope	67.6	0.139	0.0	0.2	0.0
391		5012.00	zenit	36.5	-0.085	0.0	-0.1	-0.1
392		5012.00	dir.	30.2	-0.013	0.0	-0.0	-0.0
393		5012.00	slope	62.6	-0.044	0.0	-0.1	-0.0
394		5012.00	zenit	36.5	-0.085	0.0	-0.1	-0.1
395		5012.00	dir.	30.2	-0.013	0.0	-0.0	-0.0
396		5012.00	slope	62.6	-0.044	0.0	-0.1	-0.0
397		4011.00	zenit	39.8	-0.140	0.1	-0.2	-0.1
398		4011.00	dir.	31.8	0.078	0.0	0.1	0.1
399		4011.00	slope	68.6	-0.057	0.0	-0.1	-0.0
400		4011.00	zenit	39.8	-0.140	0.1	-0.2	-0.1
401		4011.00	dir.	31.8	0.078	0.0	0.1	0.1
402		4011.00	slope	68.6	-0.057	0.0	-0.1	-0.0
403		5011.00	zenit	33.4	0.006	0.0	0.0	0.0
404		5011.00	dir.	29.4	0.005	0.0	0.0	0.0
405		5011.00	slope	81.1	-0.068	0.0	-0.1	-0.0
406		5011.00	zenit	33.4	0.006	0.0	0.0	0.0
407		5011.00	dir.	29.4	0.005	0.0	0.0	0.0
408		5011.00	slope	81.1	-0.068	0.0	-0.1	-0.0
409		6.00	zenit	39.3	0.245	0.1	0.4	0.1
410		6.00	dir.	30.1	0.011	0.0	0.0	0.0
411		6.00	slope	80.8	-0.046	0.0	-0.0	-0.0
412		6.00	zenit	39.3	0.245	0.1	0.4	0.1

413	6.00	dir.	30.1	0.011	0.0	0.0	0.0
414	6.00	slope	80.8	-0.046	0.0	-0.0	-0.0

Test of normality of homogenised residuals
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Test Kolmogorov-Smirnov : 0.3 %

Condition number : 1.3e+002