

DOKUMENTASJON GNSS-MÅLINGER

Sør-Trøndelag jordskifterett

Høyde er ikke målt nøyaktig, men tatt med for å se avvik mellom de forskjellige fix-løsningene.
Målingene er utført i SurvPC.

CPOS er benyttet som korreksjonsdata.

Dokumentasjonsfil:

Project : Maaling
Domstol : Sør-Trøndelag jordskifterett
Landmåler : Anne Langseth
Saksnummer : 19-030275RFA-JTRD Nordelva naturreservat
Instrument(s) : Spectra Precision, SP80, SN:5808551322, FW:3.38 28/02/2019, Antenna Type: [SPP91564_2 NONE]
Firmware :
Measurement method : RTK Method: Auto, Device: Pacific Crest XDL
Software version : SurvPC Version 6.03.4; Analysis DLL 2016, ver 2.0, August 01
Coordinate system/Datum : ETRS_1989_UTM_Zone_32N
Height system : Ellipsoidal
Geoid model :
Observation period : 19/08/19 09:09:58 - 19/08/19 14:01:00
Documentation date : 19/08/26 12:49:35

GNSSANALYSIS - LEAST SQUARE ADJUSTMENTS AND RELIABILITY ANALYSIS

PointID: 13

Code: 4061

Description: 1

Blunder detection CHI-Square test:

-Hmax_MDB= 0.020, Max value at obs 3

-Vmax_MDB= 0.039, Max value at obs 1

Antenna Freehand: on

Obs	North	East	Height	Anth	Status	rH	rV	MDBH	MDBV	RMS	PDOP	#Sat	Date	Time	Delay
1	7074269.184	557137.590	217.474	2.079	FIXED	0.004	-0.034	0.004	0.039	0.013	1.166	11	19/08/19	09:09:58	---
2	7074269.187	557137.604	217.457	2.079	FIXED	0.012	-0.017	0.014	0.020	0.013	1.166	11	19/08/19	09:10:32	00:00:34
3	7074269.205	557137.595	217.453	2.079	FIXED	0.017	-0.013	0.020	0.015	0.014	1.253	15	19/08/19	09:11:54	00:01:22
4	7074269.182	557137.581	217.415	2.079	FIXED	0.012	0.025	0.014	-0.029	0.013	1.082	12	19/08/19	09:15:10	00:03:16
5	7074269.179	557137.581	217.418	2.079	FIXED	0.014	0.022	0.016	-0.027	0.011	1.166	13	19/08/19	09:16:49	00:01:39
6	7074269.179	557137.588	217.431	2.079	FIXED	0.010	0.009	0.012	-0.010	0.012	1.030	16	19/08/19	09:19:37	00:02:48
7	7074269.197	557137.595	217.446	2.079	FIXED	0.010	-0.006	0.012	0.007	0.012	1.030	19	19/08/19	09:20:04	00:00:27

Least Square Adjustment and External Reliability

PointID	North	East	Height	#m	sH	sV	ExH	ExV	Status	TimeDelay	QRank	Prob
13	7074269.188	557137.592	217.440	7	0.008	0.004	0.025	0.017	FIXED	00:10:06	1	1:50000000 (10cm)

PointID: 12

Code: 4061

Description: 1

Blunder detection CHI-Square test:

-Hmax_MDB= 0.046, Max value at obs 2

-Vmax_MDB= -0.006, Max value at obs 3

Antenna Freehand: on

Obs	North	East	Height	Anth	Status	rH	rV	MDBH	MDBV	RMS	PDOP	#Sat	Date	Time	Delay
1	7074013.205	556509.984	162.352	2.079	FIXED	0.034	-0.042	0.039	0.046	0.029	1.166	12	19/08/19	09:54:56	---
2	7074013.256	556509.939	162.301	2.079	FIXED	0.034	0.009	0.046	-0.013	0.014	1.166	19	19/08/19	09:56:00	00:01:04
3	7074013.202	556509.968	162.303	2.079	FIXED	0.029	0.007	0.038	-0.006	0.012	1.166	15	19/08/19	09:57:20	00:01:20
4	7074013.299	556509.944	162.351	2.079	FLOAT	0.071	-0.041	0.072	0.041	0.273	1.304	10	19/08/19	10:40:25	00:43:05
5	7074013.217	556510.038	162.321	2.079	FLOAT	0.079	-0.011	0.079	0.011	0.230	1.304	12	19/08/19	10:41:06	00:00:41

Least Square Adjustment and External Reliability

PointID	North	East	Height	#m	sH	sV	ExH	ExV	Status	TimeDelay	QRank	Prob
12	7074013.230	556509.960	162.310	5	0.012	0.007	0.050	0.028	FIXED	00:02:24	1	1:10000000 (10cm)

PointID: 12A

Code: 4071

Description: 1

Blunder detection CHI-Square test:

-Hmax_MDB= 0.019, Max value at obs 5

-Vmax_MDB= -0.004, Max value at obs 5

Antenna Freehand: on

Obs	North	East	Height	Anth	Status	rH	rV	MDBH	MDBV	RMS	PDOP	#Sat	Date	Time	Delay
1 **	7073808.229	556095.834	181.606	2.079	FIXED	---	---	---	---	0.015	1.030	11	19/08/19	11:02:42	---
2	7073808.129	556095.855	181.675	2.079	FIXED	0.011	0.004	0.014	-0.005	0.013	1.030	13	19/08/19	11:10:18	00:07:36
3	7073808.128	556095.845	181.682	2.079	FIXED	0.005	-0.003	0.006	0.004	0.013	1.030	14	19/08/19	11:11:26	00:01:08
4	7073808.113	556095.853	181.682	2.079	FIXED	0.012	-0.003	0.016	0.004	0.013	1.030	14	19/08/19	11:12:17	00:00:51
5	7073808.123	556095.832	181.676	2.079	FIXED	0.014	0.003	0.019	-0.004	0.013	1.030	13	19/08/19	11:21:16	00:08:59

Least Square Adjustment and External Reliability

PointID	North	East	Height	#m	sH	sV	ExH	ExV	Status	TimeDelay	QRank	Prob
12A	7073808.123	556095.846	181.679	4	0.011	0.005	0.037	-0.017	FIXED	00:10:58	1	1:60000000 (10cm)

PointID: 12B

Code: 4071

Description: 1

Blunder detection CHI-Square test:

-Hmax_MDB= 0.036, Max value at obs 2

-Vmax_MDB= -0.045, Max value at obs 5

Antenna Freehand: on

Obs	North	East	Height	Anth	Status	rH	rV	MDBH	MDBV	RMS	PDOP	#Sat	Date	Time	Delay
1	7073681.887	556172.895	53.361	2.079	FIXED	0.021	0.004	0.025	-0.006	0.012	1.281	12	19/08/19	13:37:11	---
2	7073681.874	556172.933	53.383	2.079	FIXED	0.029	-0.018	0.036	0.025	0.012	1.221	12	19/08/19	13:38:07	00:00:56
3	7073681.884	556172.922	53.379	2.079	FIXED	0.015	-0.014	0.018	0.018	0.012	1.221	13	19/08/19	13:38:19	00:00:12
4	7073681.909	556172.912	53.333	2.079	FIXED	0.014	0.032	0.019	-0.036	0.019	1.803	12	19/08/19	14:00:38	00:22:19
5	7073681.917	556172.905	53.325	2.079	FIXED	0.023	0.040	0.028	-0.045	0.021	1.887	10	19/08/19	14:01:00	00:00:22

Least Square Adjustment and External Reliability

PointID	North	East	Height	#m	sH	sV	ExH	ExV	Status	TimeDelay	QRank	Prob
12B	7073681.896	556172.914	53.366	5	0.010	0.005	0.036	-0.022	FIXED	00:23:49	1	1:70000000 (10cm)

RELIABILITY

Reliability refers to the controllability of observations, that is, the ability to detect blunders and to estimate the effects that undetected blunders may have on a solution.

Internal Reliability

-Capability of a system to detect a blunder (depends on number of redundant observations).

External Reliability

-Impact of an undetected blunder on the coordinates.

PARAMETERS GNSSANALYSIS

Method: Single Point Adjustment

A Priori Standard Deviation = 1.000

Horisontal blunder detection:

CHI-Square single tail test: tabel value 23.0259, degrees of freedom=2, CHI-significance: 99.999%

Vertical blunder detection:

Normal distribution two tail test: table value ± 4.4172 , QN-significance: 99.999%
equivalent

CHI-Square single tail test: table value 19.511, degrees of freedom=1

The "Antenna Freehand" setting will impact the least squares adjustment in terms of expected errors.

If "Antenna Freehand" is enabled in the blunder detection, accepted errors from a potentially moving antenna will be larger.

ABBREVIATIONS

*** : Significant outlier; observation removed
** : Significant blunder ground coordinates; observation removed
* : Significant blunder height; height observation removed
ExH : External Reliability - ground coordinates
ExV : External Reliability - height
MDBH : Marginally Detectable Blunder(MDB) of observation - ground coordinates
MDBV : Marginally Detectable Blunder(MDB) of observation - height
Hmax_MDB : Maximum Marginal Detectable Blunder(MDB) ground coordinates
Vmax_MDB : Maximum Marginal Detectable Blunder(MDB) height
rH : Adjustment residual ground coordinates (adjusted parameters-observed) // $rH = \sqrt{(Nadj - Nobs)^2 + (Eadj - Eobs)^2}$
rV : Adjustment residual height (adjusted parameters-observed) // $rV = Hadj - Hobs$
sH : Standard deviation ground coordinates
sV : Standard deviation height
TimeDelay : Time delay between first and last observation included in the solution
QRank : Quality of the adjusted solution is classified as follows:
1 ExHmax <10 cm
3b ExHmax 10-50 cm
- ExHmax >50 cm
x External reliability not available

Dato: 19.11.2019

Underskrift: