Network Adjustment Report

Basic Information

Name	Value
Username	Juan
Project Datum	MAGNA-SIRGAS _ Colombia Bogota zone
Geoid Model	Col2004.ggf
Project Name	PLAZA ARCABUCO
Distance Units	Meter
Height Units	Meter

1 Adjustment Settings

Basic Parameters

Name	Value
Ellipsoid Name	GRS 1980
Major Axis(m)	6378137.0000
Flattening Reciprocal(1/f)	298.257222101206
Geoid Model	Col2004.ggf

Projection Parameters

Name	Value
Projection Method	Tansverse Mercator Projection
Scale Factor	1
Projection Height	0.0000
Original Latitude	04°35'46.32150"N
Central Meridian(L0)	074°04'39.02850"W
North Additive Constant(m)	1000000.0000
East Additive Constant(m)	1000000.0000

2 Adjustment Statistics

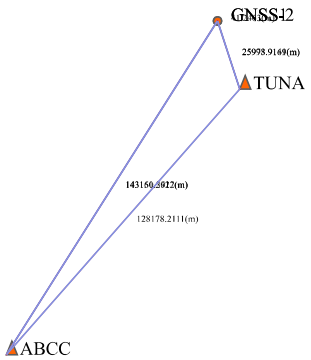
Statistical Summary

Name	Value
Network Reference Factor	25.7677149106471
Chi Square Test	Pass
Chi Square Value	10.95252
Range of Chi Square Test	2.63598 ~ 19.26906
Ratio of Unit Weight Standard Error	1.10315
Precision Confidence Level	2 sigma
Horizontal Accuracymm	22.5
Vertical Accuracymm	33.1
Check Result	Conformity

3 Control Point

Number Of Points	04
Control Point Sum	02

Control Points



4 Free Adjusted Coordinates

4.1 Baselines Input in WGS84

Observation ID	Baseline ID	DX(m)	Std.DX(mm)	DY(m)	Std.DY(mm)	DZ(m)	Std.DZ(mm)
B01	GNSS1->GNSS-2	38.0563	0.2	8.5775	0.5	-13.3941	0.3
B02	ABCC->GNSS1	70434.9977	2.3	31913.2570	3.6	120468.8657	1.5
B03	ABCC->GNSS-2	70472.8844	0.9	31921.8668	2.0	120455.4415	0.4
B04	TUNA->GNSS1	-8500.2124	1.7	257.8001	2.4	24568.7527	1.2
B05	TUNA->GNSS-2	-8462.1568	1.8	266.3679	2.8	24555.3490	1.3
B06	ABCC->TUNA	78935.1577	4.3	31655.5154	2.8	95900.0679	2.2

4.2 Adjusted Baselines in WGS84

Style One:

Observation ID	Baseline ID		Observation	Residual	Horizontal Precision(Ratio)	3D Precision(Ratio)
B01	GNSS1->GNSS-2	**Azimuth**	109.249283670	8.338655629	1:4570	1:2450
		ΔEllipsoid Height	1.2716	0.0004		
		Ellipsoid Dist.	41.2448	-0.0016		
B02	ABCC->GNSS1	**Azimuth**	32.294932745	0.152438333	1:7215873	1:2783762
		ΔEllipsoid Height	9.0522	-0.0770		
		Ellipsoid Dist.	143151.1996	-0.0926		
B03	ABCC->GNSS-2	**Azimuth**	32.311002953	0.015567732	1:7939655	1:2873841
		ΔEllipsoid Height	10.3238	0.0032		
		Ellipsoid Dist.	143160.5686	0.0069		
B04	TUNA->GNSS1	**Azimuth**	341.914128360	0.106588685	1:857593	1:464772
		ΔEllipsoid Height	-246.6145	-0.0052		
		Ellipsoid Dist.	25998.9111	-0.0058		
B05	TUNA->GNSS-2	**Azimuth**	341.986431575	0.072747997	1:860731	1:467862
		ΔEllipsoid Height	-245.3429	-0.0129		
		Ellipsoid Dist.	25973.9168	0.0028		
B06	ABCC->TUNA	**Azimuth**	41.293000258	0.141925901	1:999999	1:999999
		ΔEllipsoid Height	255.6666	0.0020		
		Ellipsoid Dist.	128178.1690	-0.0421		

Style Two:

Observation ID	Baseline ID	DX(m)	V.DX(mm)	Std.DX(mm)	DY(m)	V.DY(mm)	Std.DY(mm)	DZ(m)	V.DZ(mm)	Std.DZ(mm)
B01	GNSS1->GNSS-2	38.0545	-1.8	6.3	8.5764	-1.1	13.5	-13.3951	-1.0	7.8
B02	ABCC->GNSS1	70434.8431	-154.5	22.2	31913.2909	33.9	44.5	120468.8370	-28.7	13.2
B03	ABCC->GNSS-2	70472.8977	13.2	21.5	31921.8673	0.5	43.5	120455.4419	0.4	11.2
B04	TUNA->GNSS1	-8500.2241	-11.7	29.8	257.8010	0.9	43.0	24568.7425	-10.2	19.7
B05	TUNA->GNSS-2	-8462.1695	-12.8	29.6	266.3774	9.5	42.8	24555.3474	-1.6	19.4
B06	ABCC->TUNA	78935.0672	-90.5	33.2	31655.4899	-25.5	51.1	95900.0945	26.6	20.6

4.3 Adjusted Closeloops in WGS84

Style One:

Loop NO.	Loop Type	Loop Length(m)	Qualified	Baseline average length(m)	Baseline ID	Azimuth
C1	Sync.Loop	286353.1002	Nonconformity	95451.0334	GNSS1->GNSS-2	109.249283670
					ABCC->GNSS-2	32.311002953
					ABCC->GNSS1	32.294932745
C2	Sync.Loop	52014.0773	Nonconformity	17338.0258	GNSS1->GNSS-2	109.249283670
					TUNA->GNSS-2	341.986431575
					TUNA->GNSS1	341.914128360
C3	Sync.Loop	297328.4202	Nonconformity	99109.4734	ABCC->GNSS1	32.294932745
					ABCC->TUNA	41.293000258
					TUNA->GNSS1	341.914128360
C4	Sync.Loop	297312.6868	Nonconformity	99104.2289	ABCC->GNSS-2	32.311002953
					ABCC->TUNA	41.293000258
					TUNA->GNSS-2	341.986431575

4.4 Adjusted Geodetic Coordinates in WGS84

Point ID	Latitude	Latitude Err.(s)	Longitude	Longitude Err.(s)	Ellipsoid Height(m)	H. Err.(m)	Orthometric Height(m)
GNSS1	05°45'16.96926"N	0.000228	073°26'12.19761"W	0.000260	2588.9560	0.0200	2564.0123
GNSS-2	05°45'16.52700"N	0.000200	073°26'10.93313"W	0.000244	2590.2276	0.0193	2565.2777
ABCC	04°39'40.47023"N	0.000292	074°07'36.93142"W	0.000392	2579.9038	0.0331	2554.2486
TUNA	05°31'52.81054"N	0.000437	073°21'49.99223"W	0.000585	2835.5704	0.0327	2809.6366

4.5 Adjusted ECEF Coordinates in WGS84

Point ID(m)	X(m)	X Err.(m)	Y(m)	Y Err.(m)	Z(m)	Z Err.(m)	3D Err.(m)
GNSS1	1809873.4831	0.0107	-6085342.7208	0.0189	635534.9467	0.0077	0.0230
GNSS-2	1809911.5376	0.0101	-6085334.1444	0.0182	635521.5517	0.0066	0.0218
ABCC	1739438.6399	0.0165	-6117256.0117	0.0312	515066.1098	0.0092	0.0365
TUNA	1818373.7071	0.0218	-6085600.5218	0.0304	610966.2043	0.0142	0.0400

4.6 Adjusted Grid Coordinates and Height in Local System

Point ID	North(m)	North Err.(m)	East(m)	East Err.(m)	Elev.(m)	Elev. Err.(m)
GNSS1	1128152.0742	0.0070	1070976.3653	0.0080	2564.0123	0.0200
GNSS-2	1128138.5315	0.0061	1071015.2875	0.0075	2565.2777	0.0193
ABCC	1007192.5586	0.0090	994516.9442	0.0121	2554.2486	0.0331
TUNA	1103457.5491	0.0134	1079074.5242	0.0180	2809.6366	0.0327

4.7 Lat-Lon-Height(Local)

Point ID	Latitude	Latitude Err.(s)	Longitude	Longitude Err.(s)	Ellipsoid Height(m)	H. Err.(m)
GNSS1	05°45'16.96926"N	0.000228	073°26'12.19761"W	0.000260	2588.9560	0.0200
GNSS-2	05°45'16.52700"N	0.000200	073°26'10.93313"W	0.000244	2590.2276	0.0193
ABCC	04°39'40.47023"N	0.000292	074°07'36.93142"W	0.000392	2579.9038	0.0331
TUNA	05°31'52.81054"N	0.000437	073°21'49.99223"W	0.000585	2835.5704	0.0327

4.8 Worst baseline and station statistics

Worst baseline	Baseline ID	DX(m)	Std.DX(mm)	DY(m)	Std.DY(mm)	DZ(m)	Std.DZ(mm)	Distance(m)	Mean Error(m)	Relative error
B01(GNSS1->GNSS-2)	GNSS1->GNSS-2	38.0545	6.3	8.5764	13.5	-13.3951	7.8	41.2448	0.0168	1/2450.0000

Worst local station	North(m)	North Err.(m)	East(m)	East Err.(m)	Elev.(m)	Elev. Err.(m)	Standard Deviation(m)
TUNA	1103457.5491	0.0134	1079074.5242	0.0180	2809.6366	0.0327	0.0397

4.9 Coordinate Change

Point ID	ΔNorth(m)	ΔEast(m)	ΔEllipsoid Height(m)
GNSS1	-2.4272	1.3555	-10.3877
GNSS-2	0.8003	-0.4120	3.4643
ABCC	0.8661	-0.3833	3.4499
TUNA	0.8402	-0.5232	3.4583

4.10 Error Ellipse

Point ID	Major Axis(m)	Short Axis(m)	Azimuth(m)
GNSS1	0.0080	0.0069	78.044657717
GNSS-2	0.0075	0.0061	91.135929448
ABCC	0.0125	0.0084	109.634124090
TUNA	0.0180	0.0134	93.769443818

Error Ellipse

GNSS1		GNSS-2	
ABCC		TUNA	