

GNSS Project Report

1. Project Properties

Project Name:	puri 2025-01-04
Project Unit:	
Construction Unit:	
Principal:	
Surveyor:	
Time Zone:	(UTC-05:00)Eastern time
Software Version:	1.3.0
Start Time:(Local Time)	2025-01-07 10:08:48.0
End Time:(Local Time)	2025-01-07 10:08:53.0

1.1 Coordinate Parameter

Datum Name:	Colombia
Ellipsoid:	GRS 1980
Major Axis:	6378137.0
Inverse Flattening:	298.257
Projection Method:	Transverse Mercator
Central Meridan:	73:00:00.00000W
Central Latitude:	04:00:00.00000N
Scale:	0.9992
Projection Height(m):	0
False North(m):	2e+06
Fase East(m):	5e+06

1.2 Data Summary

Number of Observe Files:	4			
Number of Stations:	4			
Number of Baselines:	6			
Number of Repeated Baselines:	0	Passed:	0	Ineligible: 0
Number of Sync Loops:	4	Passed:	0	Ineligible: 4
Number of ASync Loops:	0	Passed:	0	Ineligible: 0

2. Observation Files

Observation Files	Interval(s)	Start time(Local Time)	Stop time(Local Time)	Time Span	Epoch numbers	Station Name	Antenna height(m)	Receiver S/N
MJ1R3260	1	2024-11-21 11:25:07.0	2024-11-21 16:30:41.0	05:05:34	18335	MJ1R	1.6876	11666381
neva3260_R	15	2024-11-20 18:59:42.0	2024-11-21 18:59:27.0	23:59:45	5760	NEVA	0.2892	5640R50323
uibe3260_R	15	2024-11-20 18:59:42.0	2024-11-21 18:59:27.0	23:59:45	5760	UIBE	0.1530	6302R40076
_mJ23260	1	2024-11-21 12:18:23.0	2024-11-21 16:36:36.0	04:18:13	15494	mJ2	1.8882	11666425

3. Baselines Summary

3.1 Baselines Result

_mJ23260-MJ1R3260	Ratio	DX(m)	DY(m)	DZ(m)	RMS(mm)	Horizontal Std(mm)	Vertical Std(mm)	Baseline Azimuth(dms)	Data Elimination Rate(%)
L1Triple		1.1427	0.5537	88.3150	7.6082			00:56:26.6057	0.2770
L1Float		1.1578	0.5303	88.3106	8.8199			00:56:46.6147	15.2263
L1Fixed	99.0000	1.1556	0.5267	88.3129	9.1305	0.3	0.5	00:56:39.5303	15.7743
neva3260_R-MJ1R3260	Ratio	DX(m)	DY(m)	DZ(m)	RMS(mm)	Horizontal Std(mm)	Vertical Std(mm)	Baseline Azimuth(dms)	Data Elimination Rate(%)
L1L2Triple		37458.5801	16347.6084	101543.2810	9.5688			21:47:05.8411	0.2892
LcFloat		37460.0558	16346.9990	101543.9964	19.6416			21:47:07.6083	27.0233
LcFixed	2.2772	37460.0003	16346.9595	101543.9427	24.9753	2.1	4.3	21:47:07.5348	37.3518

uibe3260_R-MJ1R3260	Ratio	DX(m)	DY(m)	DZ(m)	RMS(mm)	Horizontal Std(mm)	Vertical Std(mm)	Baseline Azimuth(dms)	Data Elimination Rate(%)
L1L2Triple		-63538.7163	-12665.3260	68213.0422	9.5787			316:42:51.7453	0.3215
LcFloat		-63537.5261	-12665.8193	68213.7166	16.8237			316:42:54.3062	2.1978
LcFixed	3.3053	-63537.5386	-12665.8476	68213.7145	16.9193	1.7	4.3	316:42:54.2696	8.5398
uibe3260_R-neva3260_R	Ratio	DX(m)	DY(m)	DZ(m)	RMS(mm)	Horizontal Std(mm)	Vertical Std(mm)	Baseline Azimuth(dms)	Data Elimination Rate(%)
L1L2Triple		-100996.8914	-29012.6361	-33330.3606	10.6369			252:28:49.0190	9.1877
LcFloat		-100997.5242	-29012.8149	-33330.2702	16.1140			252:28:49.5516	2.0881
LcFixed	7.7779	-100997.5272	-29012.7395	-33330.2790	11.2952	0.2	0.7	252:28:49.5335	8.4879
neva3260_R-_mJ23260	Ratio	DX(m)	DY(m)	DZ(m)	RMS(mm)	Horizontal Std(mm)	Vertical Std(mm)	Baseline Azimuth(dms)	Data Elimination Rate(%)
L1L2Triple		37458.9321	16347.7861	101454.4051	9.9450			21:48:08.2153	0.4158
LcFloat		37458.8459	16346.4038	101455.6986	21.3889			21:48:06.6025	17.9388
LcFixed	3.6209	37459.0015	16346.5010	101455.6442	20.6353	4.3	11.3	21:48:06.9455	43.9068
uibe3260_R-_mJ23260	Ratio	DX(m)	DY(m)	DZ(m)	RMS(mm)	Horizontal Std(mm)	Vertical Std(mm)	Baseline Azimuth(dms)	Data Elimination Rate(%)
L1L2Triple		-63538.2824	-12665.2829	68124.2841	9.5943			316:40:38.8638	0.6184
LcFloat		-63538.6715	-12666.3965	68125.4123	20.4417			316:40:39.4039	14.5704
LcFixed	2.1899	-63538.7324	-12666.6252	68125.4782	19.2651	6.5	21.7	316:40:39.2940	61.1831

3.2 Repeated Baseline

Point Name	Quality Checks	dX(mm)	dY(mm)	dZ(mm)	D Length(m)	Avg Length(m)	D Length Tolerance(mm)	Proportional Error
	Baselines	Ratio	RMS(mm)	DX(m)	DY(m)	DZ(m)	Length(m)	

3.3 Sync Loops

Point Name	Quality Checks	WX(mm)	WY(mm)	WZ(mm)	WS(mm)	Total Length(m)	X/Y/Z Tolerance(mm)	S Tolerance(mm)	Relative Error(ppm)
	Baselines	Ratio	RMS(m)	DX(m)	DY(m)	DZ(m)	Length(m)		
MJ1R-NEVA-UIBE#1	Ineligible	11.6538	67.6575	-50.8283	85.4217	313779.4024	36.3973	63.0	0.2722
	neva3260_R-MJ1R3260	2.2772	0.0250	37460.0003	16346.9595	101543.9427	109460.7099		
	uibe3260_R-MJ1R3260	3.3053	0.0169	-63537.5386	-12665.8476	68213.7145	94077.3796		
	uibe3260_R-neva3260_R	7.7779	0.0113	-100997.5272	-29012.7395	-33330.2790	110241.3129		
MJ1R-NEVA-mJ2#1	Ineligible	156.8465	68.1660	14.3923	171.6233	218927.4239	25.5158	44.2	0.7839
	_mJ23260-MJ1R3260	99.0000	0.0091	1.1556	0.5267	88.3129	88.3220		
	neva3260_R-MJ1R3260	2.2772	0.0250	37460.0003	16346.9595	101543.9427	109460.7099		
	neva3260_R-_mJ23260	3.6209	0.0206	37459.0015	16346.5010	101455.6442	109378.3920		
MJ1R-UIBE-mJ2#1	Ineligible	-38.1783	250.8719	76.6134	265.0733	188180.0340	22.0036	38.1	1.4086
	_mJ23260-MJ1R3260	99.0000	0.0091	1.1556	0.5267	88.3129	88.3220		
	uibe3260_R-MJ1R3260	3.3053	0.0169	-63537.5386	-12665.8476	68213.7145	94077.3796		
	uibe3260_R-_mJ23260	2.1899	0.0193	-63538.7324	-12666.6252	68125.4782	94014.3324		
NEVA-UIBE-mJ2#1	Ineligible	206.6786	386.6953	-113.0494	452.8018	313634.0372	36.3806	63.0	1.4437
	uibe3260_R-neva3260_R	7.7779	0.0113	-100997.5272	-29012.7395	-33330.2790	110241.3129		
	neva3260_R-_mJ23260	3.6209	0.0206	37459.0015	16346.5010	101455.6442	109378.3920		
	uibe3260_R-_mJ23260	2.1899	0.0193	-63538.7324	-12666.6252	68125.4782	94014.3324		

3.4 Async Loops

Point Name	Quality Checks		WX(mm)	WY(mm)	WZ(mm)	WS(mm)	Total Length(m)	X/Y/Z Tolerance(mm)	S Tolerance(mm)	Relative Error(ppm)
	Baselines	Ratio	RMS(m)	DX(m)	DY(m)		DZ(m)		Length(m)	

4. Adjust

4.1 Free Adjust In WGS84

Point Name	Value
Number of GPS Baselines:	6
Number of Adjusted Points:	4
Confidence level:	19.0000σ
Significance Level for Tau Test:	0.1000%
Ratio of Standard Error of Unit Weight:	2.3275
X2 Test Value:	20.9472
X2 Test Range:	0.9718-29.6655
X2 Test Result:	True

4.1.1 Adjusted Baselines in WGS84

Baselines	Tau	DX(m)	DY(m)	DZ(m)	Std.Dev_DX(mm)	Std.Dev_DY(mm)	Std.Dev_DZ(mm)	Std.Dev(mm)	Length(m)	Proportional Error
_mJ23260-MJ1R3260	Yes	1.1570	0.5267	88.3137	7.6	13.7	4.4	16.3	88.3229	1:5426
neva3260_R-MJ1R3260	Yes	37459.9928	16347.0069	101543.9027	31.7	75.9	20.7	84.8	109460.6773	1:1290973
uibe3260_R-MJ1R3260	Yes	-63537.5570	-12665.8681	68213.7247	31.6	75.9	20.6	84.7	94077.4021	1:1110577
uibe3260_R-neva3260_R	Yes	-100997.5265	-29012.7397	-33330.2797	7.8	20.4	4.2	22.2	110241.3124	1:4969911
neva3260_R-_mJ23260	Yes	37459.1495	16346.6166	101455.6177	32.2	76.9	20.9	85.9	109378.4354	1:1272797
uibe3260_R-_mJ23260	Yes	-63538.7903	-12666.8965	68125.5642	32.1	76.9	20.8	85.9	94014.4703	1:1094898

4.1.2 Baseline Residuals

Baselines	Tau	VDX(m)	VDY(m)	VDZ(m)	Std.Dev_VDX(mm)	Std.Dev_VDY(mm)	Std.Dev_VDZ(mm)	Std.Dev(mm)
_mJ23260-MJ1R3260	Yes	0.0013	-0.0000	0.0008	0.8	0.8	0.5	1.2
neva3260_R-MJ1R3260	Yes	-0.0075	0.0474	-0.0400	53.3	90.7	27.2	108.7
uibe3260_R-MJ1R3260	Yes	-0.0184	-0.0204	0.0102	31.2	93.2	28.8	102.4
uibe3260_R-neva3260_R	Yes	0.0008	-0.0002	-0.0006	1.0	2.9	0.4	3.1
neva3260_R-_mJ23260	Yes	0.1480	0.1156	-0.0265	75.9	319.2	82.2	338.3
uibe3260_R-_mJ23260	Yes	-0.0579	-0.2713	0.0860	105.8	640.1	48.6	650.6

4.1.3 Adjusted Points in WGS84(BLH)

Station Name	Lat.	Lon.	H(m)	Std.Dev_Lat(mm)	Std.Dev_Lon(mm)	Std.Dev_H(mm)	Std.Dev(mm)
MJ1R	03:51:26.08887N	74:55:46.07589W	328.3904	0.0	0.0	0.0	0.0
NEVA	02:56:14.28239N	75:17:34.91545W	473.1938	19.3	27.1	78.0	84.8
UIBE	03:14:20.44527N	74:20:52.36032W	716.1581	19.1	27.1	78.0	84.7
mJ2	03:51:23.22000N	74:55:46.11645W	322.6582	4.4	7.5	13.8	16.3

4.1.4 Weakest Baseline and Point

Baseline Name	Std.Dev_DX(mm)	Std.Dev_DY(mm)	Std.Dev_DZ(mm)	Std.Dev(mm)	Proportional Error
_mJ23260-MJ1R3260	7.6	13.7	4.4	16.3	1:5426
Station Name	Std.Dev_N(mm)	Std.Dev_E(mm)	Std.Dev_U(mm)	Std.Dev(mm)	
NEVA	19.3	27.1	78.0	84.8	

4.2 Constraint Adjust In WGS84

Point Name	Value
Number of GPS Baselines:	6
Number of Adjusted Points:	4
Confidence level:	19.0000σ
Significance Level for Tau Test:	0.1000%
Ratio of Standard Error of Unit Weight:	2.6291
X2 Test Value:	31.5496
X2 Test Range:	1.9344-34.8213
X2 Test Result:	True

4.2.1 Adjusted Baselines in WGS84

Baselines	Tau DX(m)	DY(m)	DZ(m)	Std.Dev_DX(mm)	Std.Dev_DY(mm)	Std.Dev_DZ(mm)	Std.DevLength(m)	Proportional Error
_mJ23260-MJ1R3260	Yes 1.1570	0.5266	88.3137	8.1	14.5	4.7	17.3	88.3229 1:5105
neva3260_R-MJ1R3260	Yes 37459.9925	16346.9920	101543.8998	33.4	79.9	21.8	89.3	109460.6723 1:1225987
uibe3260_R-MJ1R3260	Yes -63537.5570	-12665.8558	68213.7250	33.4	79.9	21.8	89.3	94077.4007 1:1053690
uibe3260_R-neva3260_R	Yes -100997.5261	29012.7124	-33330.2765	0.0	0.0	0.0	0.0	110241.3040 1:-2147483648
neva3260_R-_mJ23260	Yes 37459.1492	16346.6017	101455.6149	33.9	81.0	22.0	90.5	109378.4304 1:1208358
uibe3260_R-_mJ23260	Yes -63538.7903	-12666.8841	68125.5645	33.9	81.0	22.0	90.5	94014.4689 1:1038625

4.2.2 Baseline Residuals

Baselines	Tau	VDX(m)	VDY(m)	VDZ(m)	Std.Dev_VDX(mm)	Std.Dev_VDY(mm)	Std.Dev_VDZ(mm)	dVDX(mm)	dVDY(mm)	dVDZ(mm)
_mJ23260-MJ1R3260	Yes	0.0013	-0.0001	0.0008	0.9	0.8	0.5	-0.0132	-0.0585	-0.0212
neva3260_R-MJ1R3260	Yes	-0.0079	0.0324	-0.0429	56.8	97.1	29.0	-0.3704	-14.9428	-2.8595
uibe3260_R-MJ1R3260	Yes	-0.0184	-0.0081	0.0104	33.4	99.6	30.7	-0.0182	12.2852	0.2735
uibe3260_R-neva3260_R	Yes	0.0011	0.0271	0.0025	8.3	21.8	4.4	0.3522	27.2280	3.1330
neva3260_R-_mJ23260	Yes	0.1476	0.1007	-0.0293	80.8	339.5	87.4	-0.3572	-14.8844	-2.8382
uibe3260_R-_mJ23260	Yes	-0.0579	-0.2589	0.0863	112.5	680.4	51.7	-0.0050	12.3437	0.2947

4.2.3 Adjusted Points in WGS84(BLH)

Station Name	Lat.	Std.Dev_Lat(mm)	Lon.	Std.Dev_Lon(mm)	H(m)	Std.Dev_H(mm)
MJ1R	03:51:26.09573N	20.0	74:55:46.07369W	28.6	327.8621	82.2
NEVA	02:56:14.28885N	0.0	75:17:34.91350W	0.0	472.6760	0.0
UIBE	03:14:20.45196N	0.0	74:20:52.35784W	0.0	715.6165	0.0
mJ2	03:51:23.22686N	20.2	74:55:46.11426W	29.4	322.1300	83.2

4.2.4 Weakest Baseline and Point

Baseline Name	Std.Dev_DX(mm)	Std.Dev_DY(mm)	Std.Dev_DZ(mm)	Std.Dev(mm)	Proportional Error
_mJ23260-MJ1R3260	8.1	14.5	4.7	17.3	1:5105
Station Name	Std.Dev_N(mm)	Std.Dev_E(mm)	Std.Dev_U(mm)	Std.Dev(mm)	
mJ2	20.2	29.4	83.2	90.5	

4.3 2D Constraint Adjust In Target System

Point Name	Value
Number of GPS Baselines:	6
Number of Adjusted Points:	4
Confidence level:	19.0000σ
Significance Level for Tau Test:	0.1000%

Ratio of Standard Error of Unit Weight:	0.0000
X2 Test Value:	0.0000
X2 Test Range:	0.0000-0.0000
X2 Test Result:	False

2D Helmert Parameter :

X Translation(m):	0
Y Translation(m):	0
Rotation:	00:00:00.0000
Scale:	1

Height Fitting Parameter:

A:	0
B:	0
C:	0
D:	0
E:	0
F:	0
X0:	0
Y0:	0

4.3.1 Adjusted Baselines in WGS84

Baselines	Tau	DN(m)	DE(m)	Std.Dev_DN(mm)	Std.Dev_DE(mm)	Std.Dev(mm)	Length(m)	Proportional Error
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4.3.2 Baseline Residuals

Baselines	Tau	VDN(m)	VDE(m)	Std.Dev_VDN(mm)	Std.Dev_VDE(mm)	dVDN(mm)	dVDE(mm)
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4.3.3 Adjusted Points in Target System(NEZ)

Station Name	N(m)	E(m)	U(m)	Std.Dev_N(mm)	Std.Dev_E(mm)	Std.Dev_U(mm)	PointsStd.Dev(mm)	Elevation Correction
MJIR	Not Connected							
NEVA	Not Connected							
UIBE	Not Connected							
mJ2	Not Connected							

5. Baseline NetWork

