OPUS-RS solution : 018697_14_225_A0.14O OP1408149177243

opus <opus@ngs.noaa.gov>

Fri 8/15/2014 6:36 PM

To:John Freetly <John.Freetly@neciusa.com>;

FILE: 018697_14_225_A0.14O OP1408149177243

NGS OPUS-RS SOLUTION REPORT
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All computed coordinate accuracies are listed as 1-sigma RMS values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: john.freetly@neciusa.com DATE: August 16, 2014
RINEX FILE: 0186225x.14o TIME: 00:35:39 UTC

SOFTWARE: rsgps 1.37 RS52.prl 1.99.2 START: 2014/08/13 23:58:15
EPHEMERIS: igr18053.eph [rapid] STOP: 2014/08/14 00:55:45
NAV FILE: brdc2250.14n OBS USED: 2364 / 3192 : 74%
ANT NAME: CHCX90D-OPUS NONE QUALITY IND. 11.33/ 28.18
ARP HEIGHT: 1.8000 NORMALIZED RMS: 0.317

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2014.61649)

X:	-1394585.590(m)	0.005(m)	-1394586.465(m)	0.005(m)
Y:	-4041210.819(m)	0.016(m)	-4041209.595(m)	0.016(m)
Z:	4718744.054(m)	0.014(m)	4718744.044(m)	0.014(m)
LAT:	48 0 55.95586	0.011(m)	48 0 55.97661	0.011(m)
E LON:	250 57 39.25828	0.005(m)	250 57 39.19911	0.005(m)
W LON:	109 2 20.74172	0.005(m)	109 2 20.80089	0.005(m)
EL HGT:	957.133(m)	0.018(m)	956.543(m)	0.018(m)
ORTHO HGT:	972.299(m)	0.020(m)	[NAVD88 (Computed using GEOID12A)]	

	UTM COORDINATES (UTM (Zone 12))	STATE PLANE COORDINATES (SPC (2500 MT))
Northing (Y) [meters]	5319888.147	418524.509
Easting (X) [meters]	646227.792	634369.071
Convergence [degrees]	1.45784934	0.33715400
Point Scale	0.99986274	0.99954626
Combined Factor	0.99971277	0.99939634

US NATIONAL GRID DESIGNATOR: 12UXU4622719888(NAD 83)

 15/2014

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DG9749	MTMS MONTANA STATE UNI CORS ARP	N483227.426	W1094111.858	75661.4
DM7133	MTLW LEWISTOWN CORS ARP	N470314.929	W1092633.764	111143.0
DL7731	P053 WHITEWATERMT2007 CORS ARP	N484333.865	W1074331.456	125374.1
DI2257	P049 ARMINGTON_MT2006 CORS ARP	N472059.850	W1105422.382	158536.8
DI3425	P052 LRRNCHJRDNMT2006 CORS ARP	N472229.026	W1070107.185	167575.6
DI3422	P050 WICKUMRNCHMT2006 CORS ARP	N484834.096	W1111454.296	185874.2

NEAREST NGS PUBLISHED CONTROL POINT

Information on nearest mark is not available due to database connectivity issues or has restrictions on when or how it can be published.

OPUS-RS Extended Output, Level 2

FINAL COORDINATES (ITRF at epoch of observations)

mtms	-1425435.576	-3984013.190	4757493.855
mtlw	-1449333.484	-4105829.839	4646773.508
p053	-1283559.258	-4015770.345	4771131.634
p049	-1545099.834	-4044895.862	4669084.561
p052	-1266648.342	-4138194.555	4670709.504
p050	-1525480.185	-3923083.446	4777585.192
0186	-1394586.465	-4041209.595	4718744.044

Covariance matrix of the stations:

1 4.0210E-07 9.5560E-07 -1.0560E-06 -5.2100E-08 -2.0210E-07 2.1730E-07 -4.0750E-08 -1.8770E-07 2.1490E-07 -5.1780E-08 -1.8730E-07 2.0290E-07 -4.4610E-08 -2.0710E-07 2.2650E-07 -4.6210E-08 -1.7140E-07 1.9440E-07 3.1070E-08 1.2750E-08 -9.7140E-09

2 9.5560E-07 3.2580E-06 -3.0970E-06 -2.1380E-07 -6.4630E-07 6.0050E-07 -1.7740E-07 -7.0820E-07 7.8170E-07 -1.9260E-07 -4.7570E-07 4.3510E-07 -2.0500E-07 -8.6830E-07 8.6250E-07 -1.6670E-07 -3.9250E-07 4.1690E-07 3.6210E-08 1.5100E-07 -1.1820E-07

3 -1.0560E-06 -3.0970E-06 3.6870E-06 2.1570E-07 6.0870E-07 -6.6480E-07 2.2110E-07 7.1430E-07 -8.4900E-07 1.9690E-07 5.0640E-07 -5.6110E-07 2.3280E-07 7.8570E-07 -8.7380E-07 1.8980E-07 4.8200E-07 -5.7190E-07 -1.1730E-08 -5.4060E-08 7.6510E-08

4 -5.2100E-08 -2.1380E-07 2.1570E-07 4.3710E-07 1.0530E-06 -1.0860E-06 -5.6230E-08 -1.8970E-07 1.8480E-07 -5.2680E-08 -2.3440E-07 2.5330E-07 -5.6730E-08 -1.7740E-07 1.9160E-07 -5.2540E-08 -2.3830E-07 2.4040E-07 6.9440E-09 -5.3050E-08 5.0140E-08

5 -2.0210E-07 -6.4630E-07 6.0870E-07 1.0530E-06 3.5250E-06 -3.2060E-06 -2.2840E-07 -7.0410E-07 6.7030E-07 -1.9260E-07 -6.3520E-07 6.1390E-07 -2.4430E-07 -7.5140E-07 7.3500E-07 -1.8580E-07 -6.2180E-07 5.7870E-07 -4.0930E-08 -6.7040E-08 7.8620E-08

6 2.1730E-07 6.0050E-07 -6.6480E-07 -1.0860E-06 -3.2060E-06 3.6190E-06 2.2110E-07 7.7060E-07 -8.8270E-07 2.1130E-07 5.0140E-07 -4.8830E-07 2.3520E-07 8.7500E-07 -9.0660E-07 1.9970E-07 4.5790E-07 -5.1030E-07 -4.7680E-09 -3.2100E-08 9.5080E-08

7 -4.0750E-08 -1.7740E-07 2.2110E-07 -5.6230E-08 -2.2840E-07 2.2110E-07 3.8860E-07 9.5770E-07 -1.0470E-06

-5.5530E-08 -1.5790E-07 1.5500E-07 -2.7780E-08 -2.8070E-07 2.9410E-07 -4.2050E-08 -1.1290E-07 1.5450E-07 5.2890E-08 4.8520E-08 -4.5030E-08

8 -1.8770E-07 -7.0820E-07 7.1430E-07 -1.8970E-07 -7.0410E-07 7.7060E-07 9.5770E-07 3.7570E-06 -3.7760E-06 -1.7780E-07 -7.3850E-07 7.9720E-07 -2.2840E-07 -6.9320E-07 7.4410E-07 -1.7560E-07 -7.4620E-07 7.4900E-07 -4.1820E-08 -1.5270E-07 2.2660E-07

9 2.1490E-07 7.8170E-07 -8.4900E-07 1.8480E-07 6.7030E-07 -8.8270E-07 -1.0470E-06 -3.7760E-06 4.6500E-06 1.7720E-07 8.4170E-07 -1.0360E-06 2.6890E-07 5.4190E-07 -7.1010E-07 2.0240E-07 9.4060E-07 -1.0060E-06 9.4250E-08 3.3050E-07 -3.7920E-07

10 -5.1780E-08 -1.9260E-07 1.9690E-07 -5.2680E-08 -1.9260E-07 2.1130E-07 -5.5530E-08 -1.7780E-07 1.7720E-07 4.3550E-07 9.4390E-07 -9.8410E-07 -5.7030E-08 -1.7280E-07 1.8650E-07 -5.1480E-08 -2.0870E-07 2.1300E-07 8.0880E-09 -3.2340E-08 2.9760E-08

11 -1.8730E-07 -4.7570E-07 5.0640E-07 -2.3440E-07 -6.3520E-07 5.0140E-07 -1.5790E-07 -7.3850E-07 8.4170E-07 9.4390E-07 3.2120E-06 -3.0040E-06 -1.9510E-07 -9.9470E-07 9.3410E-07 -1.6790E-07 -2.0190E-07 2.2080E-07 5.8740E-08 2.5500E-07 -2.6690E-07

12 2.0290E-07 4.3510E-07 -5.6110E-07 2.5330E-07 6.1390E-07 -4.8830E-07 1.5500E-07 7.9720E-07 -1.0360E-06 -9.8410E-07 -3.0040E-06 3.5050E-06 1.8920E-07 1.0970E-06 -1.0860E-06 1.8250E-07 5.9850E-08 -1.6780E-07 -9.7370E-08 -3.3610E-07 4.2250E-07

13 -4.4610E-08 -2.0500E-07 2.3280E-07 -5.6730E-08 -2.4430E-07 2.3520E-07 -2.7780E-08 -2.2840E-07 2.6890E-07 -5.7030E-08 -1.9510E-07 1.8920E-07 3.9890E-07 1.0340E-06 -1.1140E-06 -4.6370E-08 -1.6040E-07 1.8680E-07 4.2850E-08 1.0270E-08 -1.5760E-08

14 -2.0710E-07 -8.6830E-07 7.8570E-07 -1.7740E-07 -7.5140E-07 8.7500E-07 -2.8070E-07 -6.9320E-07 5.4190E-07 -1.7280E-07 -9.9470E-07 1.0970E-06 1.0340E-06 4.5760E-06 -4.3220E-06 -1.9740E-07 -1.1020E-06 1.0220E-06 -1.2880E-07 -4.3460E-07 4.9230E-07

15 2.2650E-07 8.6250E-07 -8.7380E-07 1.9160E-07 7.3500E-07 -9.0660E-07 2.9410E-07 7.4410E-07 -7.1010E-07 1.8650E-07 9.3410E-07 -1.0860E-06 -1.1140E-06 -4.3220E-06 4.8010E-06 2.1560E-07 1.0470E-06 -1.0570E-06 1.1120E-07 4.1820E-07 -4.1870E-07

16 -4.6210E-08 -1.6670E-07 1.8980E-07 -5.2540E-08 -1.8580E-07 1.9970E-07 -4.2050E-08 -1.7560E-07 2.0240E-07 -5.1480E-08 -1.6790E-07 1.8250E-07 -4.6370E-08 -1.9740E-07 2.1560E-07 4.0550E-07 8.9290E-07 -9.8930E-07 2.4740E-08 1.3590E-08 -9.1950E-09

17 -1.7140E-07 -3.9250E-07 4.8200E-07 -2.3830E-07 -6.2180E-07 4.5790E-07 -1.1290E-07 -7.4620E-07 9.4060E-07 -2.0870E-07 -2.0190E-07 5.9850E-08 -1.6040E-07 -1.1020E-06 1.0470E-06 8.9290E-07 3.2320E-06 -2.9870E-06 1.1680E-07 4.1540E-07 -4.1290E-07

18 1.9440E-07 4.1690E-07 -5.7190E-07 2.4040E-07 5.7870E-07 -5.1030E-07 1.5450E-07 7.4900E-07 -1.0060E-06 2.1300E-07 2.2080E-07 -1.6780E-07 1.8680E-07 1.0220E-06 -1.0570E-06 -9.8930E-07 -2.9870E-06 3.4780E-06 -9.1880E-08 -3.2700E-07 3.7110E-07

19 3.1070E-08 3.6210E-08 -1.1730E-08 6.9440E-09 -4.0930E-08 -4.7680E-09 5.2890E-08 -4.1820E-08 9.4250E-08 8.0880E-09 5.8740E-08 -9.7370E-08 4.2850E-08 -1.2880E-07 1.1120E-07 2.4740E-08 1.1680E-07 -9.1880E-08 4.1860E-06 1.0880E-05 -1.1860E-05

20 1.2750E-08 1.5100E-07 -5.4060E-08 -5.3050E-08 -6.7040E-08 -3.2100E-08 4.8520E-08 -1.5270E-07 3.3050E-07 -3.2340E-08 2.5500E-07 -3.3610E-07 1.0270E-08 -4.3460E-07 4.1820E-07 1.3590E-08 4.1540E-07 -3.2700E-07 1.0880E-05 3.7520E-05 -3.5850E-05

21 -9.7140E-09 -1.1820E-07 7.6510E-08 5.0140E-08 7.8620E-08 9.5080E-08 -4.5030E-08 2.2660E-07 -3.7920E-07 2.9760E-08 -2.6690E-07 4.2250E-07 -1.5760E-08 4.9230E-07 -4.1870E-07 -9.1950E-09 -4.1290E-07 3.7110E-07 -1.1860E-05 -3.5850E-05 4.1680E-05

Covariance Matrix for the xyz OPUS Rover Position (meters^2).

0.0000041860	0.0000108800	-0.0000118600
0.0000108800	0.0000375200	-0.0000358500
-0.0000118600	-0.0000358500	0.0000416800

Covariance Matrix for the enu OPUS Position (meters^2).

0.0000010232	-0.0000009461	0.0000015096
-0.0000009461	0.0000035579	-0.0000032200
0.0000015096	-0.0000032200	0.0000788049

Horizontal network accuracy = 0.00396 meters.
Vertical network accuracy = 0.01741 meters.

		Vectors		
To	From	X	Y	Z
mtms	0186	-30849.111	57196.405	38749.811
mtlw	0186	-54747.019	-64620.244	-71970.535
p053	0186	111027.207	25439.250	52387.591
p049	0186	-150513.369	-3686.268	-49659.482
p052	0186	127938.123	-96984.960	-48034.540
p050	0186	-130893.720	118126.149	58841.148

Covariance matrix of the 6 vectors

1 4.5260E-06 1.1787E-05 -1.2895E-05 4.0959E-06 1.0706E-05 -1.1628E-05 4.0613E-06 1.0721E-05 -1.1730E-05
4.0951E-06 1.0621E-05 -1.1550E-05 4.0675E-06 1.0789E-05 -1.1735E-05 4.0840E-06 1.0579E-05 -1.1564E-05
2 1.1787E-05 4.0476E-05 -3.8775E-05 1.0683E-05 3.6790E-05 -3.5099E-05 1.0618E-05 3.6814E-05 -3.5281E-05
1.0684E-05 3.6638E-05 -3.4961E-05 1.0629E-05 3.6935E-05 -3.5287E-05 1.0663E-05 3.6561E-05 -3.4988E-05
3 -1.2895E-05 -3.8775E-05 4.5214E-05 -1.1683E-05 -3.5266E-05 4.0844E-05 -1.1582E-05 -3.5308E-05 4.1134E-05
-1.1681E-05 -3.5023E-05 4.0620E-05 -1.1600E-05 -3.5503E-05 4.1148E-05 -1.1649E-05 -3.4901E-05 4.0660E-05
4 4.0959E-06 1.0683E-05 -1.1683E-05 4.6092E-06 1.2027E-05 -1.2991E-05 4.0699E-06 1.0785E-05 -1.1820E-05
4.1183E-06 1.0640E-05 -1.1559E-05 4.0795E-06 1.0884E-05 -1.1830E-05 4.1018E-06 1.0578E-05 -1.1578E-05
5 1.0706E-05 3.6790E-05 -3.5266E-05 1.2027E-05 4.1179E-05 -3.9103E-05 1.0644E-05 3.7036E-05 -3.5589E-05
1.0761E-05 3.6697E-05 -3.4979E-05 1.0666E-05 3.7270E-05 -3.5612E-05 1.0722E-05 3.6550E-05 -3.5023E-05
6 -1.1628E-05 -3.5099E-05 4.0844E-05 -1.2991E-05 -3.9103E-05 4.5109E-05 -1.1589E-05 -3.5274E-05 4.1081E-05
-1.1674E-05 -3.5050E-05 4.0674E-05 -1.1604E-05 -3.5435E-05 4.1097E-05 -1.1646E-05 -3.4947E-05 4.0704E-05
7 4.0613E-06 1.0618E-05 -1.1582E-05 4.0699E-06 1.0644E-05 -1.1589E-05 4.4688E-06 1.1831E-05 -1.2956E-05
4.0695E-06 1.0615E-05 -1.1563E-05 4.0625E-06 1.0680E-05 -1.1632E-05 4.0663E-06 1.0602E-05 -1.1569E-05
8 1.0721E-05 3.6814E-05 -3.5308E-05 1.0785E-05 3.7036E-05 -3.5274E-05 1.1831E-05 4.1582E-05 -4.0183E-05
1.0776E-05 3.6679E-05 -3.4943E-05 1.0683E-05 3.7414E-05 -3.5751E-05 1.0733E-05 3.6511E-05 -3.5001E-05
9 -1.1730E-05 -3.5281E-05 4.1134E-05 -1.1820E-05 -3.5589E-05 4.1081E-05 -1.2956E-05 -4.0183E-05 4.7088E-05
-1.1807E-05 -3.5072E-05 4.0601E-05 -1.1670E-05 -3.6131E-05 4.1768E-05 -1.1743E-05 -3.4827E-05 4.0682E-05
10 4.0951E-06 1.0684E-05 -1.1681E-05 4.1183E-06 1.0761E-05 -1.1674E-05 4.0695E-06 1.0776E-05 -1.1807E-05
4.6053E-06 1.1797E-05 -1.2776E-05 4.0780E-06 1.0868E-05 -1.1814E-05 4.1017E-06 1.0587E-05 -1.1585E-05
11 1.0621E-05 3.6638E-05 -3.5023E-05 1.0640E-05 3.6697E-05 -3.5050E-05 1.0615E-05 3.6679E-05 -3.5072E-05
1.1797E-05 4.0222E-05 -3.8251E-05 1.0616E-05 3.6705E-05 -3.5067E-05 1.0640E-05 3.6648E-05 -3.5035E-05
12 -1.1550E-05 -3.4961E-05 4.0620E-05 -1.1559E-05 -3.4979E-05 4.0674E-05 -1.1563E-05 -3.4943E-05 4.0601E-05
-1.2776E-05 -3.8251E-05 4.4340E-05 -1.1558E-05 -3.4909E-05 4.0590E-05 -1.1571E-05 -3.5041E-05 4.0719E-05
13 4.0675E-06 1.0629E-05 -1.1600E-05 4.0795E-06 1.0666E-05 -1.1604E-05 4.0625E-06 1.0683E-05 -1.1670E-05
4.0780E-06 1.0616E-05 -1.1558E-05 4.4992E-06 1.2033E-05 -1.3069E-05 4.0720E-06 1.0593E-05 -1.1566E-05
14 1.0789E-05 3.6935E-05 -3.5503E-05 1.0884E-05 3.7270E-05 -3.5435E-05 1.0680E-05 3.7414E-05 -3.6131E-05
1.0868E-05 3.6705E-05 -3.4909E-05 1.2033E-05 4.2965E-05 -4.1082E-05 1.0798E-05 3.6437E-05 -3.4993E-05
15 -1.1735E-05 -3.5287E-05 4.1148E-05 -1.1830E-05 -3.5612E-05 4.1097E-05 -1.1632E-05 -3.5751E-05 4.1768E-05
-1.1814E-05 -3.5067E-05 4.0590E-05 -1.3069E-05 -4.1082E-05 4.7318E-05 -1.1746E-05 -3.4808E-05 4.0671E-05
16 4.0840E-06 1.0663E-05 -1.1649E-05 4.1018E-06 1.0722E-05 -1.1646E-05 4.0663E-06 1.0733E-05 -1.1743E-05
4.1017E-06 1.0640E-05 -1.1571E-05 4.0720E-06 1.0798E-05 -1.1746E-05 4.5420E-06 1.1643E-05 -1.2748E-05
17 1.0579E-05 3.6561E-05 -3.4901E-05 1.0578E-05 3.6550E-05 -3.4947E-05 1.0602E-05 3.6511E-05 -3.4827E-05

1.0587E-05 3.6648E-05 -3.5041E-05 1.0593E-05 3.6437E-05 -3.4808E-05 1.1643E-05 3.9921E-05 -3.8097E-05
18 -1.1564E-05 -3.4988E-05 4.0660E-05 -1.1578E-05 -3.5023E-05 4.0704E-05 -1.1569E-05 -3.5001E-05 4.0682E-05
-1.1585E-05 -3.5035E-05 4.0719E-05 -1.1566E-05 -3.4993E-05 4.0671E-05 -1.2748E-05 -3.8097E-05 4.4416E-05

Correlation matrix of the 6 vectors
1 1.0000E+00 8.7083E-01 -9.0139E-01 8.9677E-01 7.8422E-01 -8.1382E-01 9.0305E-01 7.8152E-01 -8.0347E-01
8.9696E-01 7.8720E-01 -8.1532E-01 9.0137E-01 7.7369E-01 -8.0189E-01 9.0075E-01 7.8703E-01 -8.1561E-01
2 8.7083E-01 1.0000E+00 -9.0639E-01 7.8214E-01 9.0113E-01 -8.2142E-01 7.8948E-01 8.9733E-01 -8.0813E-01
7.8250E-01 9.0804E-01 -8.2524E-01 7.8760E-01 8.8570E-01 -8.0632E-01 7.8646E-01 9.0953E-01 -8.2518E-01
3 -9.0139E-01 -9.0639E-01 1.0000E+00 -8.0927E-01 -8.1730E-01 9.0439E-01 -8.1481E-01 -8.1430E-01 8.9147E-01
-8.0950E-01 -8.2126E-01 9.0720E-01 -8.1329E-01 -8.0550E-01 8.8961E-01 -8.1290E-01 -8.2149E-01 9.0733E-01
4 8.9677E-01 7.8214E-01 -8.0927E-01 1.0000E+00 8.7298E-01 -9.0097E-01 8.9676E-01 7.7904E-01 -8.0229E-01
8.9387E-01 7.8143E-01 -8.0859E-01 8.9583E-01 7.7345E-01 -8.0103E-01 8.9647E-01 7.7981E-01 -8.0918E-01
5 7.8422E-01 9.0113E-01 -8.1730E-01 8.7298E-01 1.0000E+00 -9.0727E-01 7.8464E-01 8.9501E-01 -8.0820E-01
7.8140E-01 9.0169E-01 -8.1859E-01 7.8363E-01 8.8606E-01 -8.0675E-01 7.8396E-01 9.0146E-01 -8.1893E-01
6 -8.1382E-01 -8.2142E-01 9.0439E-01 -9.0097E-01 -9.0727E-01 1.0000E+00 -8.1625E-01 -8.1446E-01 8.9137E-01
-8.0993E-01 -8.2285E-01 9.0947E-01 -8.1455E-01 -8.0491E-01 8.8954E-01 -8.1364E-01 -8.2353E-01 9.0935E-01
7 9.0305E-01 7.8948E-01 -8.1481E-01 8.9676E-01 7.8464E-01 -8.1625E-01 1.0000E+00 8.6790E-01 -8.9315E-01
8.9704E-01 7.9174E-01 -8.2141E-01 9.0600E-01 7.7072E-01 -7.9992E-01 9.0257E-01 7.9374E-01 -8.2114E-01
8 7.8152E-01 8.9733E-01 -8.1430E-01 7.7904E-01 8.9501E-01 -8.1446E-01 8.6790E-01 1.0000E+00 -9.0810E-01
7.7873E-01 8.9688E-01 -8.1379E-01 7.8105E-01 8.8516E-01 -8.0596E-01 7.8096E-01 8.9612E-01 -8.1443E-01
9 -8.0347E-01 -8.0813E-01 8.9147E-01 -8.0229E-01 -8.0820E-01 8.9137E-01 -8.9315E-01 -9.0810E-01 1.0000E+00
-8.0176E-01 -8.0588E-01 8.8854E-01 -8.0174E-01 -8.0327E-01 8.8485E-01 -8.0294E-01 -8.0326E-01 8.8956E-01
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1.0000E+00 8.6682E-01 -8.9409E-01 8.9589E-01 7.7264E-01 -8.0033E-01 8.9683E-01 7.8079E-01 -8.1001E-01
11 7.8720E-01 9.0804E-01 -8.2126E-01 7.8143E-01 9.0169E-01 -8.2285E-01 7.9174E-01 8.9688E-01 -8.0588E-01
8.6682E-01 1.0000E+00 -9.0576E-01 7.8915E-01 8.8295E-01 -8.0381E-01 7.8718E-01 9.1456E-01 -8.2891E-01
12 -8.1532E-01 -8.2524E-01 9.0720E-01 -8.0859E-01 -8.1859E-01 9.0947E-01 -8.2141E-01 -8.1379E-01 8.8854E-01
-8.9409E-01 -9.0576E-01 1.0000E+00 -8.1829E-01 -7.9980E-01 8.8615E-01 -8.1535E-01 -8.3287E-01 9.1754E-01
13 9.0137E-01 7.8760E-01 -8.1329E-01 8.9583E-01 7.8363E-01 -8.1455E-01 9.0600E-01 7.8105E-01 -8.0174E-01
8.9589E-01 7.8915E-01 -8.1829E-01 1.0000E+00 8.6543E-01 -8.9572E-01 9.0078E-01 7.9037E-01 -8.1814E-01
14 7.7369E-01 8.8570E-01 -8.0550E-01 7.7345E-01 8.8606E-01 -8.0491E-01 7.7072E-01 8.8516E-01 -8.0327E-01
7.7264E-01 8.8295E-01 -7.9980E-01 8.6543E-01 1.0000E+00 -9.1114E-01 7.7295E-01 8.7980E-01 -8.0105E-01
15 -8.0189E-01 -8.0632E-01 8.8961E-01 -8.0103E-01 -8.0675E-01 8.8954E-01 -7.9992E-01 -8.0596E-01 8.8485E-01
-8.0033E-01 -8.0381E-01 8.8615E-01 -8.9572E-01 -9.1114E-01 1.0000E+00 -8.0125E-01 -8.0088E-01 8.8715E-01
16 9.0075E-01 7.8646E-01 -8.1290E-01 8.9647E-01 7.8396E-01 -8.1364E-01 9.0257E-01 7.8096E-01 -8.0294E-01
8.9683E-01 7.8718E-01 -8.1535E-01 9.0078E-01 7.7295E-01 -8.0125E-01 1.0000E+00 8.6461E-01 -8.9755E-01
17 7.8703E-01 9.0953E-01 -8.2149E-01 7.7981E-01 9.0146E-01 -8.2353E-01 7.9374E-01 8.9612E-01 -8.0326E-01
7.8079E-01 9.1456E-01 -8.3287E-01 7.9037E-01 8.7980E-01 -8.0088E-01 8.6461E-01 1.0000E+00 -9.0473E-01
18 -8.1561E-01 -8.2518E-01 9.0733E-01 -8.0918E-01 -8.1893E-01 9.0935E-01 -8.2114E-01 -8.1443E-01 8.8956E-01
-8.1001E-01 -8.2891E-01 9.1754E-01 -8.1814E-01 -8.0105E-01 8.8715E-01 -8.9755E-01 -9.0473E-01 1.0000E+00

G-FILE for the vectors

Axx2014 8132014 814
B20140813230020140814000 0 6 rsgps 1.37IGS
lant_info.003 NGS
C00070001 -308491110 21 571964048 63 387498110 67
C00070002 -547470187 21 -646202444 64 -719705353 67
C00070003 1110272072 21 254392500 64 523875906 68

C00070004-1505133688 21 -36862677 63 -496594822 66
C00070005 1279381230 21 -969849603 65 -480345396 68
C00070006-1308937200 21 1181261488 63 588411480 66
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D 1 7 9030508 1 8 7815201 1 9 -8034747 1 10 8969640 1 11 7872031
D 1 12 -8153224 1 13 9013663 1 14 7736871 1 15 -8018851 1 16 9007488
D 1 17 7870267 1 18 -8156131 2 3 -9063871 2 4 7821367 2 5 9011344
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D 3 6 9043924 3 7 -8148093 3 8 -8143009 3 9 8914650 3 10 -8095028
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D 3 16 -8129016 3 17 -8214860 3 18 9073346 4 5 8729812 4 6 -9009710
D 4 7 8967632 4 8 7790384 4 9 -8022913 4 10 8938677 4 11 7814348
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D 5 14 8860647 5 15 -8067534 5 16 7839607 5 17 9014577 5 18 -8189271
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D 8 16 7809565 8 17 8961244 8 18 -8144266 9 10 -8017620 9 11 -8058802
D 9 12 8885435 9 13 -8017352 9 14 -8032734 9 15 8848499 9 16 -8029431
D 9 17 -8032621 9 18 8895649 10 11 8668182 10 12 -8940949 10 13 8958862
D 10 14 7726355 10 15 -8003293 10 16 8968264 10 17 7807903 10 18 -8100143
D 11 12 -9057599 11 13 7891452 11 14 8829452 11 15 -8038115 11 16 7871833
D 11 17 9145618 11 18 -8289059 12 13 -8182853 12 14 -7998041 12 15 8861522
D 12 16 -8153537 12 17 -8328728 12 18 9175426 13 14 8654278 13 15 -8957241
D 13 16 9007823 13 17 7903696 13 18 -8181449 14 15 -9111364 14 16 7729523
D 14 17 8798016 14 18 -8010465 15 16 -8012451 15 17 -8008773 15 18 8871494
D 16 17 8646101 16 18 -8975454 17 18 -9047349

ITRF position of 0186 as determined by individual baselines

	X	Y	Z
mtms	-1394586.471	-4041209.621	4718744.070
mtlw	-1394586.461	-4041209.581	4718744.040
p053	-1394586.472	-4041209.594	4718744.045
p049	-1394586.467	-4041209.603	4718744.047
p052	-1394586.463	-4041209.610	4718744.027
p050	-1394586.467	-4041209.589	4718744.048

Residuals of position determined by individual baselines from the final position

	X	Y	Z	East	North	Up
mtms	-0.006	-0.026	0.027	0.003	-0.002	0.038
mtlw	0.005	0.013	-0.003	0.000	0.008	-0.012
p053	-0.006	0.000	0.002	-0.006	-0.000	0.003
p049	-0.001	-0.008	0.003	0.002	-0.004	0.008
p052	0.003	-0.016	-0.017	0.008	-0.022	-0.003

p050	-0.002	0.005	0.004	-0.003	0.006	0.000

STATE PLANE COORDINATES - International Foot
SPC (2500 MT)
Northing (Y) [feet] 1373111.906
Easting (X) [feet] 2081263.356
Convergence [degrees] 0.33715400
Point Scale 0.99954626
Combined Factor 0.99939634

** Orthometric Heights Above Future Geopotential Datum.

Prototype orthometric heights are now being made available as a precursor to the completion of GRAV-D and the replacement of NAVD 88 with a new geopotential reference system. The following height reflects the current best estimate of the true orthometric height, based on the existing gravimetric geoid model. This height is subject to change as data and modeling for the gravimetric geoid change throughout the lifetime of the GRAV-D project, or as new realizations of the ITRF are adopted. However, at the completion of GRAV-D, these heights will supersede the NAVD 88 heights

APPROX ORTHO HGT: 971.298 (m) [PROTOTYPE (Computed using USGG2012,GRS80,IGS08)]

dop from interpolation is 0.417
scatter (mean square distance from rover) is 20257.250
average edop for rover is 0.770
average ndop for rover is 1.300
average hdop for rover is 1.511
average vdop for rover is 1.930
average gdop for rover is 2.780

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.