OPUS-RS solution : 018772_14_225_A1.14O OP1408144268607

opus <opus@ngs.noaa.gov>

Fri 8/15/2014 5:14 PM

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

FILE: 018772_14_225_A1.14O OP1408144268607

NGS OPUS-RS SOLUTION REPORT
==========

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 15, 2014
RINEX FILE: 0187225x.14o TIME: 23:13:53 UTC

SOFTWARE: rsgps 1.37 RS50.prl 1.99.2 START: 2014/08/13 23:45:00
EPHEMERIS: igr18053.eph [rapid] STOP: 2014/08/14 00:40:45
NAV FILE: brdc2250.14n OBS USED: 1644 / 3102 : 53%
ANT NAME: CHCX90D-OPUS NONE QUALITY IND. 8.54/ 27.88
ARP HEIGHT: 1.8000 NORMALIZED RMS: 0.296

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2014.61646)

X:	-1394958.988(m)	0.014(m)	-1394959.863(m)	0.014(m)
Y:	-4039821.427(m)	0.054(m)	-4039820.203(m)	0.054(m)
Z:	4719825.534(m)	0.045(m)	4719825.524(m)	0.045(m)
LAT:	48 1 48.04576	0.013(m)	48 1 48.06652	0.013(m)
E LON:	250 57 0.34923	0.006(m)	250 57 0.29003	0.006(m)
W LON:	109 2 59.65077	0.006(m)	109 2 59.70997	0.006(m)
EL HGT:	964.198(m)	0.070(m)	963.608(m)	0.070(m)
ORTHO HGT:	979.358(m)	0.071(m)	[NAVD88 (Computed using GEOID12A)]	

	UTM COORDINATES (UTM (Zone 12))	STATE PLANE COORDINATES (SPC (2500 MT))
Northing (Y) [meters]	5321475.817	420127.935
Easting (X) [meters]	645381.144	633553.896
Convergence [degrees]	1.45014049	0.32924785
Point Scale	0.99985971	0.99955074
Combined Factor	0.99970863	0.99939971

US NATIONAL GRID DESIGNATOR: 12UXU4538121475(NAD 83)

You created this PDF from an application that is not licensed to print to novaPDF printer (http://www.novapdf.com) 15/2014

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DG9749	MTMS MONTANA STATE UNI CORS ARP	N483227.426	W1094111.858	73906.0
DM7133	MTLW LEWISTOWN CORS ARP	N470314.929	W1092633.764	112473.8
DL7731	P053 WHITEWATERMT2007 CORS ARP	N484333.865	W1074331.456	124983.2
DI2257	P049 ARMINGTON_MT2006 CORS ARP	N472059.850	W1105422.382	158563.6
DI3425	P052 LRRNCHJRDNMT2006 CORS ARP	N472229.026	W1070107.185	168978.5
DI3422	P050 WICKUMRNCHMT2006 CORS ARP	N484834.096	W1111454.296	184388.7

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	-1425435.570	-3984013.169	4757493.837
mtlw	-1449333.490	-4105829.851	4646773.520
p053	-1283559.255	-4015770.337	4771131.626
p049	-1545099.835	-4044895.860	4669084.558
p052	-1266648.346	-4138194.573	4670709.519
p050	-1525480.186	-3923083.447	4777585.194
0187	-1394959.863	-4039820.203	4719825.524

Covariance matrix of the stations:

1 1.4150E-06 4.2460E-06 -4.3130E-06 -2.6400E-07 -8.9490E-07 9.0290E-07 -2.2740E-07 -7.9030E-07 8.1190E-07 -2.7120E-07 -9.0320E-07 9.0870E-07 -2.2770E-07 -7.8960E-07 8.0850E-07 -2.5810E-07 -8.6780E-07 8.8150E-07 -4.1510E-08 -2.1330E-07 2.3170E-07

2 4.2460E-06 1.4280E-05 -1.3920E-05 -9.0300E-07 -2.9440E-06 2.8560E-06 -8.4790E-07 -2.9700E-06 3.0030E-06 -8.4310E-07 -2.6490E-06 2.5730E-06 -8.5580E-07 -3.0400E-06 2.9920E-06 -7.9610E-07 -2.5150E-06 2.4970E-06 -1.3710E-07 -3.4860E-07 4.3860E-07

3 -4.3130E-06 -1.3920E-05 1.4480E-05 8.6070E-07 2.7450E-06 -2.8040E-06 9.2110E-07 3.0260E-06 -3.1480E-06 8.1050E-07 2.5780E-06 -2.6330E-06 9.0270E-07 2.9590E-06 -3.0480E-06 8.1900E-07 2.6140E-06 -2.6790E-06 2.5210E-07 7.4690E-07 -7.7300E-07

4 -2.6400E-07 -9.0300E-07 8.6070E-07 1.5020E-06 4.4990E-06 -4.3090E-06 -2.5580E-07 -8.3120E-07 7.8820E-07 -2.8130E-07 -9.7520E-07 9.4080E-07 -2.5930E-07 -8.2770E-07 8.0540E-07 -2.7480E-07 -9.6150E-07 9.1390E-07 -1.0730E-07 -4.1580E-07 3.8690E-07

5 -8.9490E-07 -2.9440E-06 2.7450E-06 4.4990E-06 1.5020E-05 -1.3870E-05 -9.3370E-07 -3.0850E-06 2.9090E-06 -8.7170E-07 -2.8710E-06 2.6660E-06 -9.5200E-07 -3.1460E-06 2.9650E-06 -8.4570E-07 -2.8060E-06 2.5900E-06 -3.4290E-07 -9.9490E-07 9.2340E-07

6 9.0290E-07 2.8560E-06 -2.8040E-06 -4.3090E-06 -1.3870E-05 1.3670E-05 8.8020E-07 3.0420E-06 -3.0480E-06 8.4480E-07 2.5240E-06 -2.3720E-06 8.3500E-07 2.9260E-06 -2.8170E-06 8.4470E-07 2.5250E-06 -2.4630E-06 1.4000E-07 3.7500E-07 -2.4110E-07

7 -2.2740E-07 -8.4790E-07 9.2110E-07 -2.5580E-07 -9.3370E-07 8.8020E-07 1.2290E-06 3.9040E-06 -3.9670E-06

You created this PDF from an application that is not licensed to print to novaPDF printer (http://www.novapdf.com) 15/2014

-2.7480E-07 -8.0920E-07 7.7520E-07 -6.2990E-08 -6.0650E-07 6.0340E-07 -2.4230E-07 -7.0590E-07 7.8600E-07 1.9440E-07 4.3890E-07 -4.1100E-07

8 -7.9030E-07 -2.9700E-06 3.0260E-06 -8.3120E-07 -3.0850E-06 3.0420E-06 3.9040E-06 1.4750E-05 -1.4620E-05 -8.4300E-07 -2.9840E-06 2.9430E-06 -6.4390E-07 -2.6910E-06 2.7140E-06 -7.9690E-07 -2.8530E-06 2.9000E-06 -3.7320E-08 -4.0580E-07 5.4940E-07

9 8.1190E-07 3.0030E-06 -3.1480E-06 7.8820E-07 2.9090E-06 -3.0480E-06 -3.9670E-06 -1.4620E-05 1.5500E-05 8.1270E-07 2.9980E-06 -3.1150E-06 7.2740E-07 2.6570E-06 -2.8400E-06 8.2840E-07 3.0590E-06 -3.1850E-06 2.2310E-07 1.0360E-06 -1.1420E-06

10 -2.7120E-07 -8.4310E-07 8.1050E-07 -2.8130E-07 -8.7170E-07 8.4480E-07 -2.7480E-07 -8.4300E-07 8.1270E-07 1.5420E-06 4.2550E-06 -4.1050E-06 -2.8170E-07 -8.6170E-07 8.3780E-07 -2.6590E-07 -8.3660E-07 8.0020E-07 -1.0380E-07 -3.2670E-07 3.0290E-07

11 -9.0320E-07 -2.6490E-06 2.5780E-06 -9.7520E-07 -2.8710E-06 2.5240E-06 -8.0920E-07 -2.9840E-06 2.9980E-06 4.2550E-06 1.3600E-05 -1.2710E-05 -7.8430E-07 -3.0550E-06 2.7950E-06 -7.8240E-07 -1.8790E-06 1.8170E-06 1.2830E-07 7.3340E-07 -7.9130E-07

12 9.0870E-07 2.5730E-06 -2.6330E-06 9.4080E-07 2.6660E-06 -2.3720E-06 7.7520E-07 2.9430E-06 -3.1150E-06 -4.1050E-06 -1.2710E-05 1.2710E-05 6.9410E-07 2.8440E-06 -2.6650E-06 7.8520E-07 1.6840E-06 -1.7560E-06 -2.6620E-07 -1.1380E-06 1.2600E-06

13 -2.2770E-07 -8.5580E-07 9.0270E-07 -2.5930E-07 -9.5200E-07 8.3500E-07 -6.2990E-08 -6.4390E-07 7.2740E-07 -2.8170E-07 -7.8430E-07 6.9410E-07 1.2430E-06 3.9000E-06 -3.8810E-06 -2.4460E-07 -6.6400E-07 7.2130E-07 2.6300E-07 6.3930E-07 -6.5270E-07

14 -7.8960E-07 -3.0400E-06 2.9590E-06 -8.2770E-07 -3.1460E-06 2.9260E-06 -6.0650E-07 -2.6910E-06 2.6570E-06 -8.6170E-07 -3.0550E-06 2.8440E-06 3.9000E-06 1.5020E-05 -1.4220E-05 -8.1600E-07 -2.9220E-06 2.8370E-06 4.0200E-08 -2.4160E-07 2.3410E-07

15 8.0850E-07 2.9920E-06 -3.0480E-06 8.0540E-07 2.9650E-06 -2.8170E-06 6.0340E-07 2.7140E-06 -2.8400E-06 8.3780E-07 2.7950E-06 -2.6650E-06 -3.8810E-06 -1.4220E-05 1.4350E-05 8.2650E-07 2.7580E-06 -2.8120E-06 -1.4310E-07 -6.8460E-08 1.3110E-07

16 -2.5810E-07 -7.9610E-07 8.1900E-07 -2.7480E-07 -8.4570E-07 8.4470E-07 -2.4230E-07 -7.9690E-07 8.2840E-07 -2.6590E-07 -7.8240E-07 7.8520E-07 -2.4460E-07 -8.1600E-07 8.2650E-07 1.4530E-06 4.0370E-06 -4.1030E-06 -3.8380E-08 -1.2280E-07 1.4250E-07

17 -8.6780E-07 -2.5150E-06 2.6140E-06 -9.6150E-07 -2.8060E-06 2.5250E-06 -7.0590E-07 -2.8530E-06 3.0590E-06 -8.3660E-07 -1.8790E-06 1.6840E-06 -6.6400E-07 -2.9220E-06 2.7580E-06 4.0370E-06 1.3140E-05 -1.2640E-05 3.4950E-07 1.4260E-06 -1.3560E-06

18 8.8150E-07 2.4970E-06 -2.6790E-06 9.1390E-07 2.5900E-06 -2.4630E-06 7.8600E-07 2.9000E-06 -3.1850E-06 8.0020E-07 1.8170E-06 -1.7560E-06 7.2130E-07 2.8370E-06 -2.8120E-06 -4.1030E-06 -1.2640E-05 1.3060E-05 -2.0670E-07 -9.5250E-07 9.3340E-07

19 -4.1510E-08 -1.3710E-07 2.5210E-07 -1.0730E-07 -3.4290E-07 1.4000E-07 1.9440E-07 -3.7320E-08 2.2310E-07 -1.0380E-07 1.2830E-07 -2.6620E-07 2.6300E-07 4.0200E-08 -1.4310E-07 -3.8380E-08 3.4950E-07 -2.0670E-07 1.1390E-05 3.5160E-05 -3.4950E-05

20 -2.1330E-07 -3.4860E-07 7.4690E-07 -4.1580E-07 -9.9490E-07 3.7500E-07 4.3890E-07 -4.0580E-07 1.0360E-06 -3.2670E-07 7.3340E-07 -1.1380E-06 6.3930E-07 -2.4160E-07 -6.8460E-08 -1.2280E-07 1.4260E-06 -9.5250E-07 3.5160E-05 1.2280E-04 -1.1630E-04

21 2.3170E-07 4.3860E-07 -7.7300E-07 3.8690E-07 9.2340E-07 -2.4110E-07 -4.1100E-07 5.4940E-07 -1.1420E-06 3.0290E-07 -7.9130E-07 1.2600E-06 -6.5270E-07 2.3410E-07 1.3110E-07 1.4250E-07 -1.3560E-06 9.3340E-07 -3.4950E-05 -1.1630E-04 1.1880E-04

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

0.0000113900	0.0000351600	-0.0000349500
0.0000351600	0.0001228000	-0.0001163000
-0.0000349500	-0.0001163000	0.0001188000

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

You created this PDF from an application that is not licensed to print to novaPDF printer (http://www.novapdf.com) 15/2014

0.0000015638	-0.0000016641	0.0000081488
-0.0000016641	0.0000056540	-0.0000188826
0.0000081488	-0.0000188826	0.0002457722

Horizontal network accuracy = 0.00501 meters.
Vertical network accuracy = 0.03074 meters.

		Vectors		
To	From	X	Y	Z
mtms	0187	-30475.707	55807.034	37668.313
mtlw	0187	-54373.627	-66009.648	-73052.004
p053	0187	111400.607	24049.866	51306.102
p049	0187	-150139.972	-5075.656	-50740.966
p052	0187	128311.517	-98374.369	-49116.005
p050	0187	-130520.323	116736.757	57759.670

Covariance matrix of the 6 vectors

1 1.2888E-05 3.9756E-05 -3.9747E-05 1.1275E-05 3.4821E-05 -3.4419E-05 1.1010E-05 3.4620E-05 -3.4593E-05 1.1264E-05 3.4342E-05 -3.4007E-05 1.0941E-05 3.4543E-05 -3.4230E-05 1.1212E-05 3.4156E-05 -3.4094E-05

2 3.9756E-05 1.3778E-04 -1.3141E-04 3.4810E-05 1.2120E-04 -1.1426E-04 3.4010E-05 1.2058E-04 -1.1477E-04 3.4781E-05 1.1977E-04 -1.1303E-04 3.3802E-05 1.2035E-04 -1.1368E-04 3.4624E-05 1.1921E-04 -1.1329E-04

3 -3.9747E-05 -1.3141E-04 1.3483E-04 -3.4728E-05 -1.1523E-04 1.1701E-04 -3.3870E-05 -1.1457E-04 1.1757E-04 -3.4695E-05 -1.1368E-04 1.1568E-04 -3.3647E-05 -1.1432E-04 1.1639E-04 -3.4526E-05 -1.1308E-04 1.1596E-04

4 1.1275E-05 3.4810E-05 -3.4728E-05 1.3107E-05 4.0418E-05 -3.9786E-05 1.1047E-05 3.4782E-05 -3.4772E-05 1.1320E-05 3.4472E-05 -3.4130E-05 1.0975E-05 3.4708E-05 -3.4388E-05 1.1261E-05 3.4265E-05 -3.4216E-05

5 3.4821E-05 1.2120E-04 -1.1523E-04 4.0418E-05 1.3981E-04 -1.3147E-04 3.4130E-05 1.2112E-04 -1.1535E-04 3.4958E-05 1.2019E-04 -1.1342E-04 3.3912E-05 1.2089E-04 -1.1419E-04 3.4780E-05 1.1956E-04 -1.1368E-04

6 -3.4419E-05 -1.1426E-04 1.1701E-04 -3.9786E-05 -1.3147E-04 1.3295E-04 -3.3799E-05 -1.1418E-04 1.1714E-04 -3.4548E-05 -1.1336E-04 1.1541E-04 -3.3602E-05 -1.1398E-04 1.1609E-04 -3.4388E-05 -1.1279E-04 1.1564E-04

7 1.1010E-05 3.4010E-05 -3.3870E-05 1.1047E-05 3.4130E-05 -3.3799E-05 1.2230E-05 3.8662E-05 -3.8729E-05 1.1025E-05 3.3784E-05 -3.3498E-05 1.0870E-05 3.4074E-05 -3.3793E-05 1.0992E-05 3.3666E-05 -3.3546E-05

8 3.4620E-05 1.2058E-04 -1.1457E-04 3.4782E-05 1.2112E-04 -1.1418E-04 3.8662E-05 1.3836E-04 -1.3251E-04 3.4681E-05 1.1949E-04 -1.1277E-04 3.3914E-05 1.2076E-04 -1.1407E-04 3.4523E-05 1.1893E-04 -1.1300E-04

9 -3.4593E-05 -1.1477E-04 1.1757E-04 -3.4772E-05 -1.1535E-04 1.1714E-04 -3.8729E-05 -1.3251E-04 1.3658E-04 -3.4663E-05 -1.1355E-04 1.1557E-04 -3.3793E-05 -1.1491E-04 1.1697E-04 -3.4487E-05 -1.1292E-04 1.1582E-04

10 1.1264E-05 3.4781E-05 -3.4695E-05 1.1320E-05 3.4958E-05 -3.4548E-05 1.1025E-05 3.4681E-05 -3.4663E-05 1.3140E-05 3.9613E-05 -3.9092E-05 1.0949E-05 3.4585E-05 -3.4272E-05 1.1266E-05 3.4301E-05 -3.4246E-05

11 3.4342E-05 1.1977E-04 -1.1368E-04 3.4472E-05 1.2019E-04 -1.1336E-04 3.3784E-05 1.1949E-04 -1.1355E-04 3.9613E-05 1.3493E-04 -1.2708E-04 3.3608E-05 1.1925E-04 -1.1265E-04 3.4372E-05 1.1876E-04 -1.1274E-04

12 -3.4007E-05 -1.1303E-04 1.1568E-04 -3.4130E-05 -1.1342E-04 1.1541E-04 -3.3498E-05 -1.1277E-04 1.1557E-04 -3.9092E-05 -1.2708E-04 1.2899E-04 -3.3337E-05 -1.1255E-04 1.1474E-04 -3.4041E-05 -1.1212E-04 1.1485E-04

13 1.0941E-05 3.3802E-05 -3.3647E-05 1.0975E-05 3.3912E-05 -3.3602E-05 1.0870E-05 3.3914E-05 -3.3793E-05 1.0949E-05 3.3608E-05 -3.3337E-05 1.2107E-05 3.8381E-05 -3.8035E-05 1.0921E-05 3.3507E-05 -3.3369E-05

14 3.4544E-05 1.2035E-04 -1.1432E-04 3.4708E-05 1.2089E-04 -1.1398E-04 3.4074E-05 1.2076E-04 -1.1491E-04 3.4585E-05 1.1925E-04 -1.1255E-04 3.8381E-05 1.3830E-04 -1.3069E-04 3.4427E-05 1.1869E-04 -1.1274E-04

15 -3.4230E-05 -1.1368E-04 1.1639E-04 -3.4388E-05 -1.1419E-04 1.1609E-04 -3.3793E-05 -1.1407E-04 1.1697E-04 -3.4272E-05 -1.1265E-04 1.1474E-04 -3.8035E-05 -1.3069E-04 1.3289E-04 -3.4123E-05 -1.1212E-04 1.1492E-04

16 1.1212E-05 3.4624E-05 -3.4526E-05 1.1261E-05 3.4780E-05 -3.4388E-05 1.0992E-05 3.4523E-05 -3.4487E-05 1.1266E-05 3.4372E-05 -3.4041E-05 1.0921E-05 3.4427E-05 -3.4123E-05 1.2920E-05 3.8970E-05 -3.8989E-05

17 3.4156E-05 1.1921E-04 -1.1308E-04 3.4265E-05 1.1956E-04 -1.1279E-04 3.3666E-05 1.1893E-04 -1.1292E-04

You created this PDF from an application that is not licensed to print to novaPDF printer (http://www.novapdf.com) 15/2014

3.4301E-05 1.1876E-04 -1.1212E-04 3.3507E-05 1.1869E-04 -1.1212E-04 3.8970E-05 1.3309E-04 -1.2663E-04
18 -3.4094E-05 -1.1329E-04 1.1596E-04 -3.4216E-05 -1.1368E-04 1.1564E-04 -3.3546E-05 -1.1300E-04 1.1582E-04
-3.4246E-05 -1.1274E-04 1.1485E-04 -3.3369E-05 -1.1274E-04 1.1492E-04 -3.8989E-05 -1.2663E-04 1.2999E-04

Correlation matrix of the 6 vectors
1 1.0000E+00 9.4346E-01 -9.5350E-01 8.6750E-01 8.2032E-01 -8.3149E-01 8.7693E-01 8.1984E-01 -8.2451E-01
8.6559E-01 8.2351E-01 -8.3405E-01 8.7587E-01 8.1820E-01 -8.2713E-01 8.6887E-01 8.2472E-01 -8.3295E-01
2 9.4346E-01 1.0000E+00 -9.6414E-01 8.1916E-01 8.7326E-01 -8.4421E-01 8.2852E-01 8.7336E-01 -8.3665E-01
8.1745E-01 8.7839E-01 -8.4785E-01 8.2763E-01 8.7185E-01 -8.4013E-01 8.2065E-01 8.8033E-01 -8.4652E-01
3 -9.5350E-01 -9.6414E-01 1.0000E+00 -8.2614E-01 -8.3925E-01 8.7395E-01 -8.3409E-01 -8.3884E-01 8.6636E-01
-8.2430E-01 -8.4281E-01 8.7719E-01 -8.3279E-01 -8.3720E-01 8.6956E-01 -8.2723E-01 -8.4415E-01 8.7592E-01
4 8.6750E-01 8.1916E-01 -8.2614E-01 1.0000E+00 9.4419E-01 -9.5310E-01 8.7254E-01 8.1677E-01 -8.2183E-01
8.6259E-01 8.1972E-01 -8.3006E-01 8.7125E-01 8.1521E-01 -8.2399E-01 8.6537E-01 8.2042E-01 -8.2895E-01
5 8.2032E-01 8.7326E-01 -8.3925E-01 9.4419E-01 1.0000E+00 -9.6428E-01 8.2538E-01 8.7081E-01 -8.3474E-01
8.1562E-01 8.7507E-01 -8.4458E-01 8.2425E-01 8.6938E-01 -8.3775E-01 8.1834E-01 8.7651E-01 -8.4325E-01
6 -8.3149E-01 -8.4421E-01 8.7395E-01 -9.5310E-01 -9.6428E-01 1.0000E+00 -8.3818E-01 -8.4187E-01 8.6924E-01
-8.2658E-01 -8.4635E-01 8.8128E-01 -8.3754E-01 -8.4058E-01 8.7341E-01 -8.2972E-01 -8.4795E-01 8.7967E-01
7 8.7693E-01 8.2852E-01 -8.3409E-01 8.7254E-01 8.2538E-01 -8.3818E-01 1.0000E+00 9.3986E-01 -9.4759E-01
8.6967E-01 8.3163E-01 -8.4337E-01 8.9326E-01 8.2851E-01 -8.3823E-01 8.7442E-01 8.3445E-01 -8.4133E-01
8 8.1984E-01 8.7336E-01 -8.3884E-01 8.1677E-01 8.7081E-01 -8.4187E-01 9.3986E-01 1.0000E+00 -9.6389E-01
8.1338E-01 8.7450E-01 -8.4411E-01 8.2862E-01 8.7294E-01 -8.4122E-01 8.1654E-01 8.7640E-01 -8.4256E-01
9 -8.2451E-01 -8.3665E-01 8.6636E-01 -8.2183E-01 -8.3474E-01 8.6924E-01 -9.4759E-01 -9.6389E-01 1.0000E+00
-8.1824E-01 -8.3640E-01 8.7067E-01 -8.3101E-01 -8.3609E-01 8.6823E-01 -8.2098E-01 -8.3754E-01 8.6923E-01
10 8.6559E-01 8.1745E-01 -8.2430E-01 8.6259E-01 8.1562E-01 -8.2658E-01 8.6967E-01 8.1338E-01 -8.1824E-01
1.0000E+00 9.4079E-01 -9.4954E-01 8.6810E-01 8.1129E-01 -8.2017E-01 8.6469E-01 8.2024E-01 -8.2863E-01
11 8.2351E-01 8.7839E-01 -8.4281E-01 8.1972E-01 8.7507E-01 -8.4635E-01 8.3163E-01 8.7450E-01 -8.3640E-01
9.4079E-01 1.0000E+00 -9.6326E-01 8.3151E-01 8.7296E-01 -8.4122E-01 8.2323E-01 8.8623E-01 -8.5125E-01
12 -8.3405E-01 -8.4785E-01 8.7719E-01 -8.3006E-01 -8.4458E-01 8.8128E-01 -8.4337E-01 -8.4411E-01 8.7067E-01
-9.4954E-01 -9.6326E-01 1.0000E+00 -8.4359E-01 -8.4267E-01 8.7641E-01 -8.3387E-01 -8.5574E-01 8.8694E-01
13 8.7587E-01 8.2763E-01 -8.3279E-01 8.7125E-01 8.2425E-01 -8.3754E-01 8.9326E-01 8.2862E-01 -8.3101E-01
8.6810E-01 8.3151E-01 -8.4359E-01 1.0000E+00 9.3794E-01 -9.4825E-01 8.7319E-01 8.3474E-01 -8.4114E-01
14 8.1820E-01 8.7185E-01 -8.3720E-01 8.1521E-01 8.6938E-01 -8.4058E-01 8.2851E-01 8.7294E-01 -8.3609E-01
8.1129E-01 8.7296E-01 -8.4267E-01 9.3794E-01 1.0000E+00 -9.6398E-01 8.1442E-01 8.7487E-01 -8.4085E-01
15 -8.2713E-01 -8.4013E-01 8.6956E-01 -8.2399E-01 -8.3775E-01 8.7341E-01 -8.3823E-01 -8.4122E-01 8.6823E-01
-8.2017E-01 -8.4122E-01 8.7641E-01 -9.4825E-01 -9.6398E-01 1.0000E+00 -8.2352E-01 -8.4307E-01 8.7439E-01
16 8.6887E-01 8.2065E-01 -8.2723E-01 8.6537E-01 8.1834E-01 -8.2972E-01 8.7442E-01 8.1654E-01 -8.2098E-01
8.6469E-01 8.2323E-01 -8.3387E-01 8.7319E-01 8.1442E-01 -8.2352E-01 1.0000E+00 9.3980E-01 -9.5138E-01
17 8.2472E-01 8.8033E-01 -8.4415E-01 8.2042E-01 8.7651E-01 -8.4795E-01 8.3445E-01 8.7640E-01 -8.3754E-01
8.2024E-01 8.8623E-01 -8.5574E-01 8.3474E-01 8.7487E-01 -8.4307E-01 9.3980E-01 1.0000E+00 -9.6275E-01
18 -8.3295E-01 -8.4652E-01 8.7592E-01 -8.2895E-01 -8.4325E-01 8.7967E-01 -8.4133E-01 -8.4256E-01 8.6923E-01
-8.2863E-01 -8.5125E-01 8.8694E-01 -8.4114E-01 -8.4085E-01 8.7439E-01 -9.5138E-01 -9.6275E-01 1.0000E+00

G-FILE for the vectors

Axx2014 8132014 814
B20140813230020140814000 0 6 rsgps 1.37IGS
lant_info.003 NGS
C00070001 -304757071 35 558070344 117 376683132 116
C00070002 -543736270 36 -660096476 118 -730520043 115
C00070003 1114006074 34 240498660 117 513061016 116

You created this PDF from an application that is not licensed to print to novaPDF printer (http://www.novapdf.com) 15/2014

C00070004-1501399723 36 -50756561 116 -507409656 113
C00070005 1283115169 34 -983743691 117 -491160048 115
C00070006-1305203231 35 1167367568 115 577596695 114
D 1 2 9434638 1 3 -9535033 1 4 8675032 1 5 8203195 1 6 -8314858
D 1 7 8769321 1 8 8198420 1 9 -8245062 1 10 8655909 1 11 8235131
D 1 12 -8340549 1 13 8758668 1 14 8181955 1 15 -8271275 1 16 8688696
D 1 17 8247160 1 18 -8329485 2 3 -9641354 2 4 8191606 2 5 8732595
D 2 6 -8442064 2 7 8285238 2 8 8733627 2 9 -8366539 2 10 8174450
D 2 11 8783875 2 12 -8478476 2 13 8276285 2 14 8718505 2 15 -8401285
D 2 16 8206516 2 17 8803306 2 18 -8465237 3 4 -8261362 3 5 -8392516
D 3 6 8739543 3 7 -8340874 3 8 -8388367 3 9 8663606 3 10 -8242951
D 3 11 -8428080 3 12 8771895 3 13 -8327936 3 14 -8371954 3 15 8695625
D 3 16 -8272317 3 17 -8441461 3 18 8759177 4 5 9441864 4 6 -9530954
D 4 7 8725422 4 8 8167718 4 9 -8218304 4 10 8625865 4 11 8197205
D 4 12 -8300647 4 13 8712468 4 14 8152056 4 15 -8239946 4 16 8653665
D 4 17 8204152 4 18 -8289487 5 6 -9642836 5 7 8253810 5 8 8708108
D 5 9 -8347383 5 10 8156154 5 11 8750682 5 12 -8445794 5 13 8242542
D 5 14 8693752 5 15 -8377539 5 16 8183395 5 17 8765126 5 18 -8432539
D 6 7 -8381789 6 8 -8418672 6 9 8692393 6 10 -8265808 6 11 -8463529
D 6 12 8812807 6 13 -8375350 6 14 -8405752 6 15 8734050 6 16 -8297158
D 6 17 -8479471 6 18 8796656 7 8 9398628 7 9 -9475905 7 10 8696710
D 7 11 8316292 7 12 -8433714 7 13 8932621 7 14 8285053 7 15 -8382257
D 7 16 8744199 7 17 8344521 7 18 -8413322 8 9 -9638864 8 10 8133790
D 8 11 8744974 8 12 -8441149 8 13 8286182 8 14 8729437 8 15 -8412197
D 8 16 8165377 8 17 8764002 8 18 -8425553 9 10 -8182366 9 11 -8364022
D 9 12 8706746 9 13 -8310144 9 14 -8360909 9 15 8682311 9 16 -8209766
D 9 17 -8375396 9 18 8692342 10 11 9407877 10 12 -9495448 10 13 8680986
D 10 14 8112936 10 15 -8201736 10 16 8646936 10 17 8202404 10 18 -8286258
D 11 12 -9632569 11 13 8315077 11 14 8729603 11 15 -8412224 11 16 8232266
D 11 17 8862314 11 18 -8512462 12 13 -8435876 12 14 -8426737 12 15 8764134
D 12 16 -8338699 12 17 -8557430 12 18 8869414 13 14 9379425 13 15 -9482544
D 13 16 8731888 13 17 8347384 13 18 -8411404 14 15 -9639826 14 16 8144244
D 14 17 8748664 14 18 -8408515 15 16 -8235237 15 17 -8430659 15 18 8743915
D 16 17 9398035 16 18 -9513762 17 18 -9627465

ITRF position of 0187 as determined by individual baselines

	X	Y	Z
mtms	-1394959.881	-4039820.279	4719825.587
mtlw	-1394959.866	-4039820.228	4719825.559
p053	-1394959.882	-4039820.258	4719825.569
p049	-1394959.868	-4039820.243	4719825.551
p052	-1394959.870	-4039820.245	4719825.548
p050	-1394959.875	-4039820.247	4719825.562

Residuals of position determined by individual baselines from the final position

	X	Y	Z	East	North	Up
mtms	-0.019	-0.076	0.063	0.007	-0.015	0.099
mtlw	-0.003	-0.024	0.035	0.005	0.006	0.042
p053	-0.020	-0.055	0.045	-0.001	-0.013	0.073
p049	-0.005	-0.040	0.027	0.008	-0.011	0.047
p052	-0.007	-0.042	0.024	0.007	-0.015	0.046

You created this PDF from an application that is not licensed to print to novaPDF printer (http://www.novapdf.com) 15/2014

p050	-0.013	-0.043	0.038	0.002	-0.008	0.059

STATE PLANE COORDINATES - International Foot
SPC (2500 MT)
Northing (Y) [feet] 1378372.490
Easting (X) [feet] 2078588.898
Convergence [degrees] 0.32924785
Point Scale 0.99955074
Combined Factor 0.99939971

** 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: 978.357 (m) [PROTOTYPE (Computed using USGG2012,GRS80,IGS08)]

dop from interpolation is 0.417
scatter (mean square distance from rover) is 20235.237
average edop for rover is 0.850
average ndop for rover is 1.200
average hdop for rover is 1.471
average vdop for rover is 2.030
average gdop for rover is 2.890

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.

You created this PDF from an application that is not licensed to print to novaPDF printer (http://www.novapdf.com) 15/2014