OPUS-RS solution : 018506_14_231_A1.14O OP1408627694882

opus <opus@ngs.noaa.gov>

Thu 8/21/2014 7:31 AM

To:Chad Mozol <Chad.Mozol@neciusa.com>;

FILE: 018506_14_231_A1.14O OP1408627694882

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: cmozol@neciusa.com DATE: August 21, 2014
RINEX FILE: 0185231s.14o TIME: 13:30:59 UTC

SOFTWARE: rsgps 1.37 RS53.prl 1.99.2 START: 2014/08/19 18:03:00
EPHEMERIS: igr18062.eph [rapid] STOP: 2014/08/19 19:08:00
NAV FILE: brdc2310.14n OBS USED: 2875 / 3325 : 86%
ANT NAME: CHCX90D-OPUS NONE QUALITY IND. 22.96/ 36.68
ARP HEIGHT: 1.8 NORMALIZED RMS: 0.373

	REF FRAME: NAD_83(2011)(EPOCH:2010.0000)		IGS08 (EPOCH:2014.63226)	
X:	-1334357.079(m)	0.003(m)	-1334357.955(m)	0.003(m)
Y:	-4035996.347(m)	0.009(m)	-4035995.123(m)	0.009(m)
Z:	4740163.186(m)	0.012(m)	4740163.178(m)	0.012(m)
LAT:	48 18 22.53691	0.007(m)	48 18 22.55818	0.007(m)
E LON:	251 42 19.39946	0.004(m)	251 42 19.34046	0.004(m)
W LON:	108 17 40.60054	0.004(m)	108 17 40.65954	0.004(m)
EL HGT:	760.627(m)	0.013(m)	760.031(m)	0.013(m)
ORTHO HGT:	777.179(m)	0.016(m)	[NAVD88 (Computed using GEOID12A)]	

	UTM COORDINATES	STATE PLANE COORDINATES
	UTM (Zone 12)	SPC (2500 MT)
Northing (Y) [meters]	5353878.398	451423.923
Easting (X) [meters]	700603.982	689383.933
Convergence [degrees]	2.02081343	0.88174693
Point Scale	1.00009447	0.99964873
Combined Factor	0.99997526	0.99952958

US NATIONAL GRID DESIGNATOR: 12UYU0060353878(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7731	P053 WHITEWATERMT2007 CORS ARP	N484333.865	W1074331.456	62837.8
DG9749	MTMS MONTANA STATE UNI CORS ARP	N483227.426	W1094111.858	106290.2
DI3425	P052 LRRNCHJRDNMT2006 CORS ARP	N472229.026	W1070107.185	140901.1
DM7133	MTLW LEWISTOWN CORS ARP	N470314.929	W1092633.764	163761.7
DI2257	P049 ARMINGTON_MT2006 CORS ARP	N472059.850	W1105422.382	222583.8

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)

p053	-1283559.261	-4015770.325	4771131.597
mtms	-1425435.579	-3984013.209	4757493.882
p052	-1266648.335	-4138194.560	4670709.495
mtlw	-1449333.482	-4105829.823	4646773.503
p049	-1545099.838	-4044895.885	4669084.584
0185	-1334357.955	-4035995.123	4740163.178

Covariance matrix of the stations:

1 3.2870E-07 5.8230E-07 -5.5270E-07 -1.5300E-09 -1.2900E-08 1.0100E-07 2.8380E-08 -2.6110E-07 2.1580E-07
-6.5100E-08 -2.0490E-07 1.4880E-07 -9.0790E-08 -1.0230E-07 8.6800E-08 1.3700E-07 2.1610E-07 -1.9960E-07

2 5.8230E-07 1.8570E-06 -1.9540E-06 -1.0590E-07 -2.4580E-07 4.1630E-07 -9.4170E-08 -5.8450E-07 6.2220E-07
-1.8260E-07 -4.8230E-07 5.0700E-07 -1.9990E-07 -3.4350E-07 4.0860E-07 1.0480E-07 2.6670E-07 -2.0130E-07

3 -5.5270E-07 -1.9540E-06 2.4310E-06 1.3240E-07 4.6180E-07 -5.3840E-07 1.3740E-07 5.2040E-07 -5.8540E-07
1.4210E-07 4.9640E-07 -5.6270E-07 1.4130E-07 4.7460E-07 -5.4540E-07 -1.5700E-08 -1.8720E-08 4.6910E-08

4 -1.5300E-09 -1.0590E-07 1.3240E-07 2.8870E-07 5.6910E-07 -6.1530E-07 -1.1080E-08 -1.5460E-07 1.5840E-07
-3.4250E-08 -1.6160E-07 1.6540E-07 -4.1510E-08 -1.4720E-07 1.5940E-07 5.0090E-08 2.8740E-08 -2.1400E-08

5 -1.2900E-08 -2.4580E-07 4.6180E-07 5.6910E-07 1.8740E-06 -1.9320E-06 -8.9240E-08 -6.4030E-07 6.4780E-07
-2.1880E-07 -4.9170E-07 4.7870E-07 -2.4660E-07 -2.9630E-07 3.4310E-07 1.2380E-07 3.4630E-07 -2.7030E-07

6 1.0100E-07 4.1630E-07 -5.3840E-07 -6.1530E-07 -1.9320E-06 2.3610E-06 1.3310E-07 5.8580E-07 -6.1760E-07
1.8440E-07 5.0850E-07 -5.3260E-07 1.9530E-07 4.2220E-07 -4.7280E-07 -3.6130E-08 -1.0700E-07 1.1870E-07

7 2.8380E-08 -9.4170E-08 1.3740E-07 -1.1080E-08 -8.9240E-08 1.3310E-07 2.8740E-07 5.2230E-07 -5.7260E-07
-4.5240E-08 -1.9350E-07 1.6440E-07 -6.0310E-08 -1.4450E-07 1.3700E-07 8.4930E-08 8.6640E-08 -8.4490E-08

8 -2.6110E-07 -5.8450E-07 5.2040E-07 -1.5460E-07 -6.4030E-07 5.8580E-07 5.2230E-07 2.3920E-06 -2.3750E-06
-7.4910E-08 -4.0860E-07 5.9200E-07 -3.4600E-08 -5.5710E-07 6.7800E-07 -1.6110E-07 -3.9560E-07 3.9690E-07

9 2.1580E-07 6.2220E-07 -5.8540E-07 1.5840E-07 6.4780E-07 -6.1760E-07 -5.7260E-07 -2.3750E-06 2.6620E-06
1.1080E-07 5.1120E-07 -6.0540E-07 9.0070E-08 5.9210E-07 -6.5460E-07 9.5190E-08 2.8850E-07 -2.1630E-07

10 -6.5100E-08 -1.8260E-07 1.4210E-07 -3.4250E-08 -2.1880E-07 1.8440E-07 -4.5240E-08 -7.4910E-08 1.1080E-07
3.4270E-07 6.7760E-07 -6.6510E-07 1.9340E-09 -2.0170E-07 2.2780E-07 -2.1360E-08 -1.3860E-07 1.2570E-07

11 -2.0490E-07 -4.8230E-07 4.9640E-07 -1.6160E-07 -4.9170E-07 5.0850E-07 -1.9350E-07 -4.0860E-07 5.1120E-07
6.7760E-07 2.0480E-06 -2.0690E-06 -1.1770E-07 -4.6600E-07 5.5230E-07 -9.2570E-08 -1.6370E-07 1.7780E-07

12 1.4880E-07 5.0700E-07 -5.6270E-07 1.6540E-07 4.7870E-07 -5.3260E-07 1.6440E-07 5.9200E-07 -6.0540E-07
-6.6510E-07 -2.0690E-06 2.4150E-06 1.8660E-07 4.9090E-07 -5.1330E-07 1.4110E-08 2.2500E-08 3.3890E-08

13 -9.0790E-08 -1.9990E-07 1.4130E-07 -4.1510E-08 -2.4660E-07 1.9530E-07 -6.0310E-08 -3.4600E-08 9.0070E-08

1.9340E-09 -1.1770E-07 1.8660E-07 3.9140E-07 5.9750E-07 -6.1270E-07 -5.0730E-08 -1.9280E-07 1.7980E-07
14 -1.0230E-07 -3.4350E-07 4.7460E-07 -1.4720E-07 -2.9630E-07 4.2220E-07 -1.4450E-07 -5.5710E-07 5.9210E-07
-2.0170E-07 -4.6600E-07 4.9090E-07 5.9750E-07 1.8610E-06 -1.9810E-06 2.5840E-08 1.4740E-07 -1.0390E-07
15 8.6800E-08 4.0860E-07 -5.4540E-07 1.5940E-07 3.4310E-07 -4.7280E-07 1.3700E-07 6.7800E-07 -6.5460E-07
2.2780E-07 5.5230E-07 -5.1330E-07 -6.1270E-07 -1.9810E-06 2.3870E-06 -5.7640E-08 -1.8500E-07 2.1640E-07
16 1.3700E-07 1.0480E-07 -1.5700E-08 5.0090E-08 1.2380E-07 -3.6130E-08 8.4930E-08 -1.6110E-07 9.5190E-08
-2.1360E-08 -9.2570E-08 1.4110E-08 -5.0730E-08 2.5840E-08 -5.7640E-08 2.9490E-06 6.9200E-06 -7.4890E-06
17 2.1610E-07 2.6670E-07 -1.8720E-08 2.8740E-08 3.4630E-07 -1.0700E-07 8.6640E-08 -3.9560E-07 2.8850E-07
-1.3860E-07 -1.6370E-07 2.2500E-08 -1.9280E-07 1.4740E-07 -1.8500E-07 6.9200E-06 2.2810E-05 -2.5180E-05
18 -1.9960E-07 -2.0130E-07 4.6910E-08 -2.1400E-08 -2.7030E-07 1.1870E-07 -8.4490E-08 3.9690E-07 -2.1630E-07
1.2570E-07 1.7780E-07 3.3890E-08 1.7980E-07 -1.0390E-07 2.1640E-07 -7.4890E-06 -2.5180E-05 3.0270E-05

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

0.0000029490	0.0000069200	-0.0000074890
0.0000069200	0.0000228100	-0.0000251800
-0.0000074890	-0.0000251800	0.0000302700

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

0.0000007812	0.0000002596	0.0000008332
0.0000002596	0.0000012337	-0.0000002191
0.0000008332	-0.0000002191	0.0000540141

Horizontal network accuracy = 0.00250 meters.
Vertical network accuracy = 0.01441 meters.

Vectors

To	From	X	Y	Z
p053	0185	50798.694	20224.798	30968.420
mtms	0185	-91077.624	51981.914	17330.704
p052	0185	67709.620	-102199.437	-69453.683
mtlw	0185	-114975.527	-69834.700	-93389.675
p049	0185	-210741.884	-8900.761	-71078.594

Covariance matrix of the 5 vectors
1 3.0037E-06 7.1814E-06 -7.8264E-06 2.7604E-06 6.5672E-06 -7.1523E-06 2.7555E-06 6.6039E-06 -7.1688E-06
2.7683E-06 6.5916E-06 -7.1547E-06 2.7719E-06 6.5758E-06 -7.1450E-06
2 7.1814E-06 2.4134E-05 -2.6914E-05 6.6806E-06 2.1951E-05 -2.4455E-05 6.6344E-06 2.2354E-05 -2.4645E-05
6.7712E-06 2.2225E-05 -2.4494E-05 6.8081E-06 2.2052E-05 -2.4385E-05
3 -7.8264E-06 -2.6914E-05 3.2607E-05 -7.3195E-06 -2.4429E-05 2.9566E-05 -7.2514E-06 -2.5038E-05 2.9854E-05
-7.4569E-06 -2.4843E-05 2.9626E-05 -7.5118E-06 -2.4583E-05 2.9461E-05
4 2.7604E-06 6.6806E-06 -7.3195E-06 3.1375E-06 7.3366E-06 -8.0468E-06 2.8029E-06 6.8978E-06 -7.4044E-06
2.8860E-06 6.8222E-06 -7.3163E-06 2.9081E-06 6.7182E-06 -7.2506E-06
5 6.5672E-06 2.1951E-05 -2.4429E-05 7.3366E-06 2.3991E-05 -2.6735E-05 6.6203E-06 2.2219E-05 -2.4550E-05
6.7160E-06 2.2136E-05 -2.4453E-05 6.7424E-06 2.2020E-05 -2.4382E-05
6 -7.1523E-06 -2.4455E-05 2.9566E-05 -8.0468E-06 -2.6735E-05 3.2394E-05 -7.2353E-06 -2.4884E-05 2.9750E-05
-7.3942E-06 -2.4742E-05 2.9585E-05 -7.4374E-06 -2.4547E-05 2.9462E-05
7 2.7555E-06 6.6344E-06 -7.2514E-06 2.8029E-06 6.6203E-06 -7.2353E-06 3.0665E-06 7.5168E-06 -8.0723E-06
2.8402E-06 6.7324E-06 -7.2542E-06 2.8545E-06 6.6630E-06 -7.2099E-06
8 6.6039E-06 2.2354E-05 -2.5038E-05 6.8978E-06 2.2219E-05 -2.4884E-05 7.5168E-06 2.5993E-05 -2.8240E-05
7.1448E-06 2.2961E-05 -2.5007E-05 7.2393E-06 2.2501E-05 -2.4714E-05
9 -7.1688E-06 -2.4645E-05 2.9854E-05 -7.4044E-06 -2.4550E-05 2.9750E-05 -8.0723E-06 -2.8240E-05 3.3365E-05
-7.5991E-06 -2.5135E-05 2.9847E-05 -7.6739E-06 -2.4773E-05 2.9615E-05

10 2.7683E-06 6.7712E-06 -7.4569E-06 2.8860E-06 6.7160E-06 -7.3942E-06 2.8402E-06 7.1448E-06 -7.5991E-06 3.3344E-06 7.8288E-06 -8.2939E-06 3.0230E-06 6.8311E-06 -7.3293E-06
11 6.5916E-06 2.2225E-05 -2.4843E-05 6.8222E-06 2.2136E-05 -2.4742E-05 6.7324E-06 2.2961E-05 -2.5135E-05 7.8288E-06 2.5185E-05 -2.7449E-05 7.0877E-06 2.2360E-05 -2.4620E-05
12 -7.1547E-06 -2.4494E-05 2.9626E-05 -7.3163E-06 -2.4453E-05 2.9585E-05 -7.2542E-06 -2.5007E-05 2.9847E-05 -8.2939E-06 -2.7449E-05 3.2617E-05 -7.4963E-06 -2.4608E-05 2.9506E-05
13 2.7719E-06 6.8081E-06 -7.5118E-06 2.9081E-06 6.7424E-06 -7.4374E-06 2.8545E-06 7.2393E-06 -7.6739E-06 3.0230E-06 7.0877E-06 -7.4963E-06 3.4419E-06 7.6845E-06 -8.2239E-06
14 6.5758E-06 2.2052E-05 -2.4583E-05 6.7182E-06 2.2020E-05 -2.4547E-05 6.6630E-06 2.2501E-05 -2.4773E-05 6.8311E-06 2.2360E-05 -2.4608E-05 7.6845E-06 2.4376E-05 -2.6872E-05
15 -7.1450E-06 -2.4385E-05 2.9461E-05 -7.2506E-06 -2.4382E-05 2.9462E-05 -7.2099E-06 -2.4714E-05 2.9615E-05 -7.3293E-06 -2.4620E-05 2.9506E-05 -8.2239E-06 -2.6872E-05 3.2224E-05

Correlation matrix of the 5 vectors
1 1.0000E+00 8.4347E-01 -7.9082E-01 8.9918E-01 7.7361E-01 -7.2508E-01 9.0790E-01 7.4738E-01 -7.1610E-01 8.7472E-01 7.5786E-01 -7.2284E-01 8.6210E-01 7.6848E-01 -7.2624E-01
2 8.4347E-01 1.0000E+00 -9.5942E-01 7.6773E-01 9.1226E-01 -8.7465E-01 7.7120E-01 8.9253E-01 -8.6851E-01 7.5482E-01 9.0147E-01 -8.7303E-01 7.4700E-01 9.0920E-01 -8.7442E-01
3 -7.9082E-01 -9.5942E-01 1.0000E+00 -7.2365E-01 -8.7342E-01 9.0972E-01 -7.2517E-01 -8.6002E-01 9.0511E-01 -7.1514E-01 -8.6690E-01 9.0845E-01 -7.0907E-01 -8.7195E-01 9.0887E-01
4 8.9918E-01 7.6773E-01 -7.2365E-01 1.0000E+00 8.4561E-01 -7.9818E-01 9.0363E-01 7.6381E-01 -7.2369E-01 8.9227E-01 7.6747E-01 -7.2323E-01 8.8496E-01 7.6821E-01 -7.2109E-01
5 7.7361E-01 9.1226E-01 -8.7342E-01 8.4561E-01 1.0000E+00 -9.5900E-01 7.7184E-01 8.8975E-01 -8.6774E-01 7.5088E-01 9.0052E-01 -8.7416E-01 7.4198E-01 9.1056E-01 -8.7689E-01
6 -7.2508E-01 -8.7465E-01 9.0972E-01 -7.9818E-01 -9.5900E-01 1.0000E+00 -7.2594E-01 -8.5756E-01 9.0493E-01 -7.1146E-01 -8.6624E-01 9.1016E-01 -7.0436E-01 -8.7354E-01 9.1189E-01
7 9.0790E-01 7.7120E-01 -7.2517E-01 9.0363E-01 7.7184E-01 -7.2594E-01 1.0000E+00 8.4193E-01 -7.9805E-01 8.8820E-01 7.6608E-01 -7.2534E-01 8.7863E-01 7.7066E-01 -7.2529E-01
8 7.4738E-01 8.9253E-01 -8.6002E-01 7.6381E-01 8.8975E-01 -8.5756E-01 8.4193E-01 1.0000E+00 -9.5895E-01 7.6745E-01 8.9739E-01 -8.5885E-01 7.6537E-01 8.9390E-01 -8.5393E-01
9 -7.1610E-01 -8.6851E-01 9.0511E-01 -7.2369E-01 -8.6774E-01 9.0493E-01 -7.9805E-01 -9.5895E-01 1.0000E+00 -7.2046E-01 -8.6709E-01 9.0476E-01 -7.1611E-01 -8.6865E-01 9.0320E-01
10 8.7472E-01 7.5482E-01 -7.1514E-01 8.9227E-01 7.5088E-01 -7.1146E-01 8.8820E-01 7.6745E-01 -7.2046E-01 1.0000E+00 8.5430E-01 -7.9529E-01 8.9235E-01 7.5770E-01 -7.0706E-01
11 7.5786E-01 9.0147E-01 -8.6690E-01 7.6747E-01 9.0052E-01 -8.6624E-01 7.6608E-01 8.9739E-01 -8.6709E-01 8.5430E-01 1.0000E+00 -9.5771E-01 7.6126E-01 9.0244E-01 -8.6423E-01
12 -7.2284E-01 -8.7303E-01 9.0845E-01 -7.2323E-01 -8.7416E-01 9.1016E-01 -7.2534E-01 -8.5885E-01 9.0476E-01 -7.9529E-01 -9.5771E-01 1.0000E+00 -7.0750E-01 -8.7270E-01 9.1013E-01
13 8.6210E-01 7.4700E-01 -7.0907E-01 8.8496E-01 7.4198E-01 -7.0436E-01 8.7863E-01 7.6537E-01 -7.1611E-01 8.9235E-01 7.6126E-01 -7.0750E-01 1.0000E+00 8.3895E-01 -7.8089E-01
14 7.6848E-01 9.0920E-01 -8.7195E-01 7.6821E-01 9.1056E-01 -8.7354E-01 7.7066E-01 8.9390E-01 -8.6865E-01 7.5770E-01 9.0244E-01 -8.7270E-01 8.3895E-01 1.0000E+00 -9.5880E-01
15 -7.2624E-01 -8.7442E-01 9.0887E-01 -7.2109E-01 -8.7689E-01 9.1189E-01 -7.2529E-01 -8.5393E-01 9.0320E-01 -7.0706E-01 -8.6423E-01 9.1013E-01 -7.8089E-01 -9.5880E-01 1.0000E+00

G-FILE for the vectors

Axx2014 8192014 819
B20140819180020140819190 0 5 rsgps 1.37IGS
lant_info.003 NGS
C00060001 507986935 17 202247980 49 309684195 57
C00060002 -910776241 17 519819142 48 173307036 56

C00060003 677096198 17-1021994371 50 -694536832 57
C00060004-1149755272 18 -698347001 50 -933896749 57
C00060005-2107418835 18 -89007612 49 -710785935 56
D 1 2 8434702 1 3 -7908190 1 4 8991814 1 5 7736137 1 6 -7250801
D 1 7 9079040 1 8 7473814 1 9 -7161015 1 10 8747187 1 11 7578550
D 1 12 -7228368 1 13 8621025 1 14 7684837 1 15 -7262404 2 3 -9594232
D 2 4 7677300 2 5 9122616 2 6 -8746496 2 7 7711975 2 8 8925284
D 2 9 -8685099 2 10 7548218 2 11 9014682 2 12 -8730291 2 13 7469959
D 2 14 9092049 2 15 -8744246 3 4 -7236549 3 5 -8734226 3 6 9097167
D 3 7 -7251728 3 8 -8600215 3 9 9051129 3 10 -7151407 3 11 -8668967
D 3 12 9084483 3 13 -7090727 3 14 -8719495 3 15 9088748 4 5 8456125
D 4 6 -7981761 4 7 9036287 4 8 7638093 4 9 -7236908 4 10 8922692
D 4 11 7674651 4 12 -7232282 4 13 8849606 4 14 7682064 4 15 -7210862
D 5 6 -9589984 5 7 7718392 5 8 8897476 5 9 -8677363 5 10 7508838
D 5 11 9005151 5 12 -8741576 5 13 7419764 5 14 9105556 5 15 -8768863
D 6 7 -7259411 6 8 -8575559 6 9 9049287 6 10 -7114586 6 11 -8662356
D 6 12 9101557 6 13 -7043575 6 14 -8735425 6 15 9118911 7 8 8419309
D 7 9 -7980498 7 10 8882044 7 11 7660781 7 12 -7253421 7 13 8786331
D 7 14 7706617 7 15 -7252905 8 9 -9589545 8 10 7674488 8 11 8973891
D 8 12 -8588457 8 13 7653676 8 14 8939039 8 15 -8539261 9 10 -7204576
D 9 11 -8670881 9 12 9047620 9 13 -7161066 9 14 -8686480 9 15 9031962
D 10 11 8542971 10 12 -7952903 10 13 8923492 10 14 7576959 10 15 -7070642
D 11 12 -9577085 11 13 7612590 11 14 9024438 11 15 -8642340 12 13 -7075016
D 12 14 -8726991 12 15 9101266 13 14 8389455 13 15 -7808867 14 15 -9587989

ITRF position of 0185 as determined by individual baselines

	X	Y	Z
p053	-1334357.950	-4035995.123	4740163.191
mtms	-1334357.956	-4035995.122	4740163.170
p052	-1334357.958	-4035995.130	4740163.175
mtlw	-1334357.954	-4035995.131	4740163.188
p049	-1334357.957	-4035995.110	4740163.162

Residuals of position determined by individual baselines from the final position

	X	Y	Z	East	North	Up
p053	0.005	0.000	0.013	0.005	0.010	0.009
mtms	-0.001	0.002	-0.007	-0.002	-0.004	-0.006
p052	-0.003	-0.007	-0.002	-0.001	-0.007	0.003
mtlw	0.001	-0.008	0.010	0.004	0.001	0.012
p049	-0.002	0.014	-0.016	-0.006	-0.002	-0.020

STATE PLANE COORDINATES - International Foot
SPC (2500 MT)

Northing (Y) [feet]	1481049.616
Easting (X) [feet]	2261758.310
Convergence [degrees]	0.88174693
Point Scale	0.99964873
Combined Factor	0.99952958

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

dop from interpolation is 0.569
scatter (mean square distance from rover) is 22289.457
average edop for rover is 0.780
average ndop for rover is 0.850
average hdop for rover is 1.154
average vdop for rover is 1.960
average gdop for rover is 2.630

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.