

## OPUS-RS solution : 940123223A.14O OP1408210309526

opus &lt;opus@ngs.noaa.gov&gt;

Sat 8/16/2014 11:35 AM

To:John Freetly &lt;John.Freetly@neciusa.com&gt;;

FILE: 940123223A.14O OP1408210309526

## 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: 9401224a.14o                              TIME: 17:34:41 UTC

SOFTWARE: rsgps 1.37 RS90.prl 1.99.2              START: 2014/08/12 00:48:20  
 EPHEMERIS: igr18052.eph [rapid]                      STOP: 2014/08/12 02:07:45  
 NAV FILE: brdc2240.14n                              OBS USED: 4086 / 5154 : 79%  
 ANT NAME: CHCX91R                      NONE                      QUALITY IND. 12.43/ 29.99  
 ARP HEIGHT: 1.800                              NORMALIZED RMS:      0.303

REF FRAME: NAD\_83(2011)(EPOCH:2010.0000)              IGS08 (EPOCH:2014.61113)

X: -1392245.139(m) 0.004(m)              -1392246.014(m) 0.004(m)  
 Y: -4034431.010(m) 0.006(m)              -4034429.787(m) 0.006(m)  
 Z: 4725248.117(m) 0.008(m)              4725248.108(m) 0.008(m)

LAT: 48 6 9.38328 0.004(m)              48 6 9.40407 0.004(m)  
 E LON: 250 57 39.29482 0.003(m)              250 57 39.23556 0.003(m)  
 W LON: 109 2 20.70518 0.003(m)              109 2 20.76444 0.003(m)  
 EL HGT: 1001.295(m) 0.010(m)              1000.707(m) 0.010(m)  
 ORTHO HGT: 1016.466(m) 0.013(m) [NAVD88 (Computed using GEOID12A)]

## UTM COORDINATES    STATE PLANE COORDINATES

UTM (Zone 12)              SPC (2500 MT )

Northing (Y) [meters]    5329564.378              428200.769  
 Easting (X) [meters]    645982.122              634312.887  
 Convergence [degrees]    1.45984787              0.33716143  
 Point Scale              0.99986186              0.99957420  
 Combined Factor              0.99970497              0.99941736

US NATIONAL GRID DESIGNATOR: 12UXU4598229564(NAD 83)

## BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DG9749	MTMS MONTANA STATE UNI CORS ARP	N483227.426	W1094111.858	68433.7
DL7731	P053 WHITEWATERMT2007 CORS ARP	N484333.865	W1074331.456	119441.5
DM7133	MTLW LEWISTOWN CORS ARP	N470314.929	W1092633.764	120479.1
DI2257	P049 ARMINGTON_MT2006 CORS ARP	N472059.850	W1105422.382	163181.4
DI3425	P052 LRRNCHJRDNMT2006 CORS ARP	N472229.026	W1070107.185	171803.3
DI3422	P050 WICKUMRNCHMT2006 CORS ARP	N484834.096	W1111454.296	181351.9

## 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.

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.