

GPS Antenna Calibrations

Observing Static Baselines using the ORGN and CORS Stations

- There are a variety of antennas on ORGN and CORS Stations
- RINEX files contain information about the antenna
- LGO may not know how to deal with non Leica antennas
- What to do?

RINEX Files

- 2.11 OBSERVATION DATA G RINEX VERSION / TYPE
- Spider V3,1,2,3092 2009 03 06 10:59 PGM / RUN BY / DATE
- PDXA MARKER NAME
- PDXA MARKER NUMBER
- Ken Bays ODOT Geometronics OBSERVER / AGENCY
- REC # / TYPE / VERS
- 999 TRM41249.00 TZGD ANT # / TYPE
- ~~-2409147.4904 -3765744.1826 4534005.5118~~ APPROX POSITION XYZ
- 0.0000 0.0000 0.0000 ANTENNA: DELTA H/E/N
- 1 1 WAVELENGTH FACT L1/2
- 5 C1 L1 P2 L2 C2 # / TYPES OF OBSERV
- 5.000 INTERVAL
- 2009 03 06 10 00 0.000000 GPS TIME OF FIRST OBS
- 2009 03 06 10 59 55.000000 GPS TIME OF LAST OBS
- 15 LEAP SECONDS

LGO Needs to Know The Antenna Properties

- L1 Phase Center Offset
- L2 Phase Center Offset

- What are they?
- Where do I get them?

www.ngs.noaa.gov

NGS, Positioning America for the Future

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[Products & Services](#)

Friday, March 6, 2009

The NGS Database will be unavailable on Friday, March 6, 2009, from 7:00pm Eastern time until 11:00pm, security patching.


[Upcoming Events](#)

[2/2009 - Celebrating 15 Years of the CORS Program](#)
This February, the National Geodetic Survey celebrated the 15th anniversary of the Continuously Operating Station (CORS) program. [more](#)

[11/06/2008 - Release of new version of CORS program](#)
Today NGS is implementing a new database to facilitate publication of data from the Southern Hemisphere Modernization project done after Hurricane Wilma with FEMA post hurricane recovery efforts.

Internet Explorer browser window showing the NGS Products & Services page. The browser address bar displays "http--intranet.odot.state.or.us-tsgeometronics- NGS DATASHEET DATASHEET PAGE". The page content is organized into two main columns: PRODUCTS and SERVICES.

NGS Products & Services



PRODUCTS

[Data](#) | [Software](#) | [Publications](#)

Data

- [Aeronautical Photos and Data](#)
- [CARIB97](#)
- [CORS: GPS Continuously Operating Reference Stations](#)
- [Data Sheets](#) [bench marks and survey monuments]
- [DCAR97](#)
- [DMEX97](#)
- [Geoid](#)
 - [GEOID06](#)
 - [GEOID03](#)

SERVICES

[Data Processing](#) | [Field Services](#) | [Special Projects](#) | [Data Contribution](#)

Data Processing

- [Geodetic Tool Kit](#)

Field Services

- [GPS Antenna Calibration](#)
- [Calibration Base Lines for EDM](#)
- [Federal Base Network \(FBN\) Surveys](#)
- [NGS Field Operations Plan](#)
- [NGS Workshop Program](#)
- [State Geodetic Advisor Program](#)

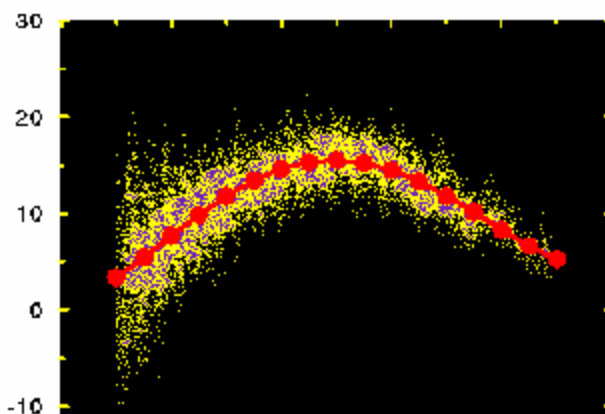
Calibrated Antennas:

- [AeroAntenna \(AER\)](#)
- [Allen Osborne Associates \(AOA, NGS, JPL\)](#)
- [ALTUS Positioning Systems \(APS\)](#)
- [Ashtech \(ASH, THA\)](#)
- [DataGrid International \(DGR\)](#)
- [Gutec AB \(GUT\)](#)
- [Javad \(JAV, JNS, JPS\)](#)
- [Leica \(LEI\)](#)
- [Macrometer \(MAC\)](#)
- [Magellan Professional \(MAG\)](#)
- [Micro Pulse \(MPL\)](#)
- [NavCom \(NAV\)](#)
- [NovAtel \(NOV\)](#)
- [Sensor Systems \(SEN\)](#)
- [Sokkia \(SOK\)](#)
- [Spectra Precision \(SPP\)](#)
- [Thales Navigation \(ASH, THA\)](#)
- [Topcon \(TOP, TPS\)](#)
- [Trimble \(TRM\)](#)
- [GPS Block II A Satellite](#)



Antenna testing faci

Phase Center Variation (mm)



Antenna Calibration Resources

- [Calibration Format Information](#)
- [GPS Antenna Calibration at the National Geodetic Survey \[PDF Version\]](#) by Ge.
- [Complete Relative Antenna Calibration Results](#)
- [Complete Absolute Antenna Calibration Results](#)
- [Leica SR399 Modification History](#)

Relative Antenna Calibrations

[Complete Relative Antenna Calibration File](#)

This file contains the relative antenna calibrations, where all antenna offsets and phase center variations are computed with respect to the AOAD/M_T antenna.

Absolute Antenna Calibrations

[Complete Absolute Antenna Calibration File](#)

This file contains absolute antenna calibrations where all the relative antenna offsets and phase center variations that the National Geodetic Survey has computed are added to the absolute values for AOAD/M_T antenna as described by: http://www.geopp.com/gnpcvdb/AOA_DM_T/. The absolute antenna calibration file is intended for IGS Analysis Centers and others who are interested in combining absolute antenna calibrations with the newly determined BLK II A z-offsets described elsewhere in this website.

http://www.ngs.noaa.gov/cgi-bin/showdoc.prl?Data=GPS/ant_info.003

Computer Support Desk Google ODOT ODOT Intranet Oregon.Gov TripCheck Verify URL http-intranet.odot.state.or.gov

<ant_info.003>

<BGK-09/01/22=250>

ANTENNA ID	DESCRIPTION	DATA SOURCE	(# OF TESTS)	YR/MO/DY
[north] [east] [up]				
[90] [85] [80]	[75] [70] [65]	[60] [55] [50]	[45]	
[40] [35] [30]	[25] [20] [15]	[10] [5] [0]		
[north] [east] [up]				
[90] [85] [80]	[75] [70] [65]	[60] [55] [50]	[45]	
[40] [35] [30]	[25] [20] [15]	[10] [5] [0]		

AVE = # in average
| L1 Offset (mm)
| L1 Phase at
| Elevation (mm)
| L2 Offset (mm)
| L2 Phase at
| Elevation (mm)

NONE	NONE	NGS (0)	99/10/04
0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0

AERAT1675_29	NONE	TNCFB-000-RG-25-NM-R,	TNC RF CONN TO N	NGS (3)	08/07/11
0.0	-1.9	70.3			
0.0	1.0	2.1	3.4	4.6	5.8
8.0	7.1	5.7	3.5	0.6	-3.2
-1.1	-1.9	63.7			
0.0	-1.8	-2.5	-2.3	-1.7	-0.7
1.7	0.8	-0.6	-2.5	-4.9	-7.7

DATA SOURCE (# OF TESTS) YR/MO/DY

| AVE = # in average

| L1 Offset (mm)

[55] [50] [45] | L1 Phase at

[5] [0] | Elevation (mm)

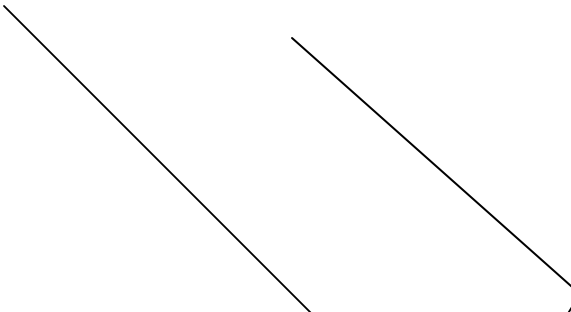
| L2 Offset (mm)

[55] [50] [45] | L2 Phase at

[5] [0] | Elevation (mm)

NGS (0) 99/10/04

- L1 and L2 phase center offsets in mm



AERAT1675_29	NONE	TNCES-000	RG-25-NM-R,	TNC	RF	CONN	TO	N	NGS	(3)	08/07/11
0.0	-1.9	70.3									
0.0	1.0	2.1	3.4	4.6	5.8	6.9	7.7	8.2	8.4		
8.0	7.1	5.7	3.5	0.6	-3.2	-7.9	0.0	0.0			
-1.1	-1.9	63.7									
0.0	-1.8	-2.5	-2.3	-1.7	-0.7	0.3	1.2	1.8	2.0		
1.7	0.8	-0.6	-2.5	-4.9	-7.7	-10.7	0.0	0.0			
AERAT2775 150	NONE	L1/L2							NGS	(2)	06/10/11

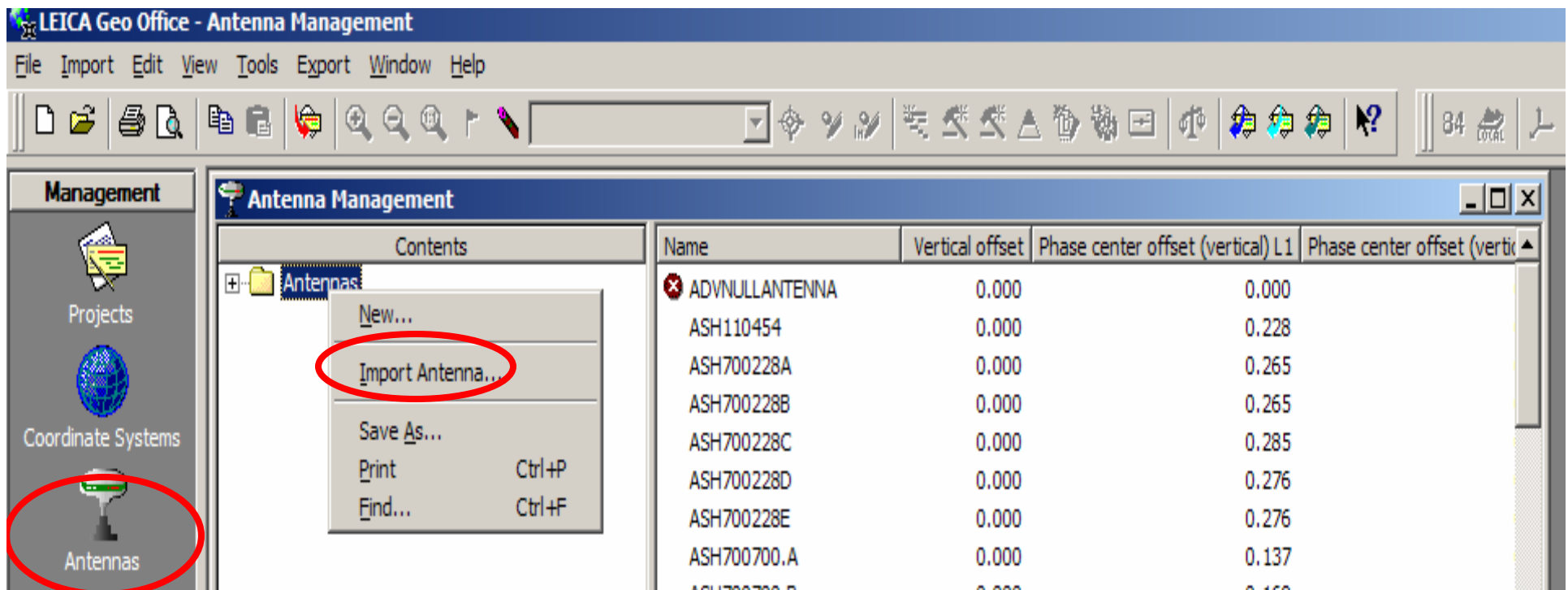
Import antenna file into LGO

- Open the text file with the list of calibrated antennas
- Save as a text file only
- Delete all of the antennas that you don't need
- Save the edited file to be imported into LGO
- **You must** save all of the header information with the file

Import antenna file into LGO

In LGO go to Antenna Management>Right Click on Antennas under contents>Import Antenna....

Navigate to the saved text file containing the list of antennas, select the file and click open. The antennas will now be in the list inside LGO



LEICA Geo Office - Antenna Management

File Import Edit View Tools Export Window Help

Management

- Projects
- Coordinate Systems
- Antennas

Antenna Management

Contents

- Antennas

Import Antenna...

Name	Vertical offset	Phase center offset (vertical) L1	Phase center offset (vertical)
ADVNULLANTENNA	0.000	0.000	
ASH110454	0.000	0.228	
ASH700228A	0.000	0.265	
ASH700228B	0.000	0.265	
ASH700228C	0.000	0.285	
ASH700228D	0.000	0.276	
ASH700228E	0.000	0.276	
ASH700700.A	0.000	0.137	
ASH700700.B	0.000	0.160	

