

NOTICE TO UNAVCO GPS DATA PRODUCT USERS: KNOWN DATA QUALITY ISSUE WITH SOME PREVIOUSLY DISTRIBUTED DATA PRODUCTS

3 November 2014

To users of UNAVCO GPS Time Series Position (*.POS) files, *.CSV files derived from .POS files, and SINEX (.SNX) files.

POS, CSV and SNX data products distributed from the UNAVCO archive between the dates of 01 January 2014 and 15 October 2014 based on Central Washington University (CWU) and combined (PBO) solutions contain inaccurate daily positions. Affected time series can include “height anomalies” that, in the most extreme cases, can suggest artificial vertical station deviations of up to several centimeters over periods of days to weeks at some stations. While the problem resulted in noticeable height anomalies on several dozen stations, it impacted all ~2,000 PBO and CORS stations in a manner that may not be obvious. Examples of time series from severely affected stations are shown below. There are also small (~1mm) aliased tidal signals mostly seen in the station heights. These signals can often be seen as with an aliased period of 13.6 days. They are artifacts of the inconsistent application of ocean tidal loading corrections.

Affected Data Products.

This issue only affects POS, CSV and SNX files based on Central Washington University (CWU) and combined (PBO) solutions. Examples of affected time series files (**do not use these files for any purpose – please delete if you have previously downloaded these products!**):

“AB01.**pbo**.final_nam08.pos” distributed between 1/1/2014 and 10/15/14.

“AB01.**cwu**.final_nam08.pos” distributed between 1/1/2014 and 10/15/14.

“AB01.**pbo**.nam08.csv” distributed between 1/1/2014 and 10/15/14.

“AB01.**cwu**.nam08.csv” distributed between 1/1/2014 and 10/15/14.

Unaffected (“Safe”) Data Products.

POS, CSV and SNX files based on New Mexico Tech (NMT) solutions are not affected by this issue. NMT data products distributed at any time in 2014 are not affected and are APPROPRIATE TO USE. Examples of unaffected, APPROPRIATE TO USE time series files (**use these!**):

“AB01.**nmt**.final_nam08.pos” distributed at any time.

“AB01.**nmt**.nam08.csv” distributed at any time.

Current Status.

The issue has been fully resolved. All POS, CSV and SNX files distributed from the UNAVCO archive after 10/15/14 are considered vetted, validated and therefore are “safe” to use.

Recommended Actions for Users.

- Do not use POS, CSV or SNX files based on Central Washington University (CWU) and combined (PBO) solution files distributed from the UNAVCO archive between 1/1/14 and 10/15/14.
- Delete these files from your holdings and download the most current versions from the UNAVCO archive.
- Review and update any interpretations based on analysis of these files.

- Make this issue known to all potential users of these files.
- Contact UNAVCO for additional information. Email data@unavco.org.

General Information.

UNAVCO GPS site position time series *.POS and *.CSV files are available from:
<ftp://data-out.unavco.org/pub/products/position/>

UNAVCO SINEX files are available from:
<ftp://data-out.unavco.org/pub/products/sinex/>

Please contact us if you have any questions: data@unavco.org.

We sincerely apologize for any inconvenience caused by this issue.

Examples of affected and unaffected time series.

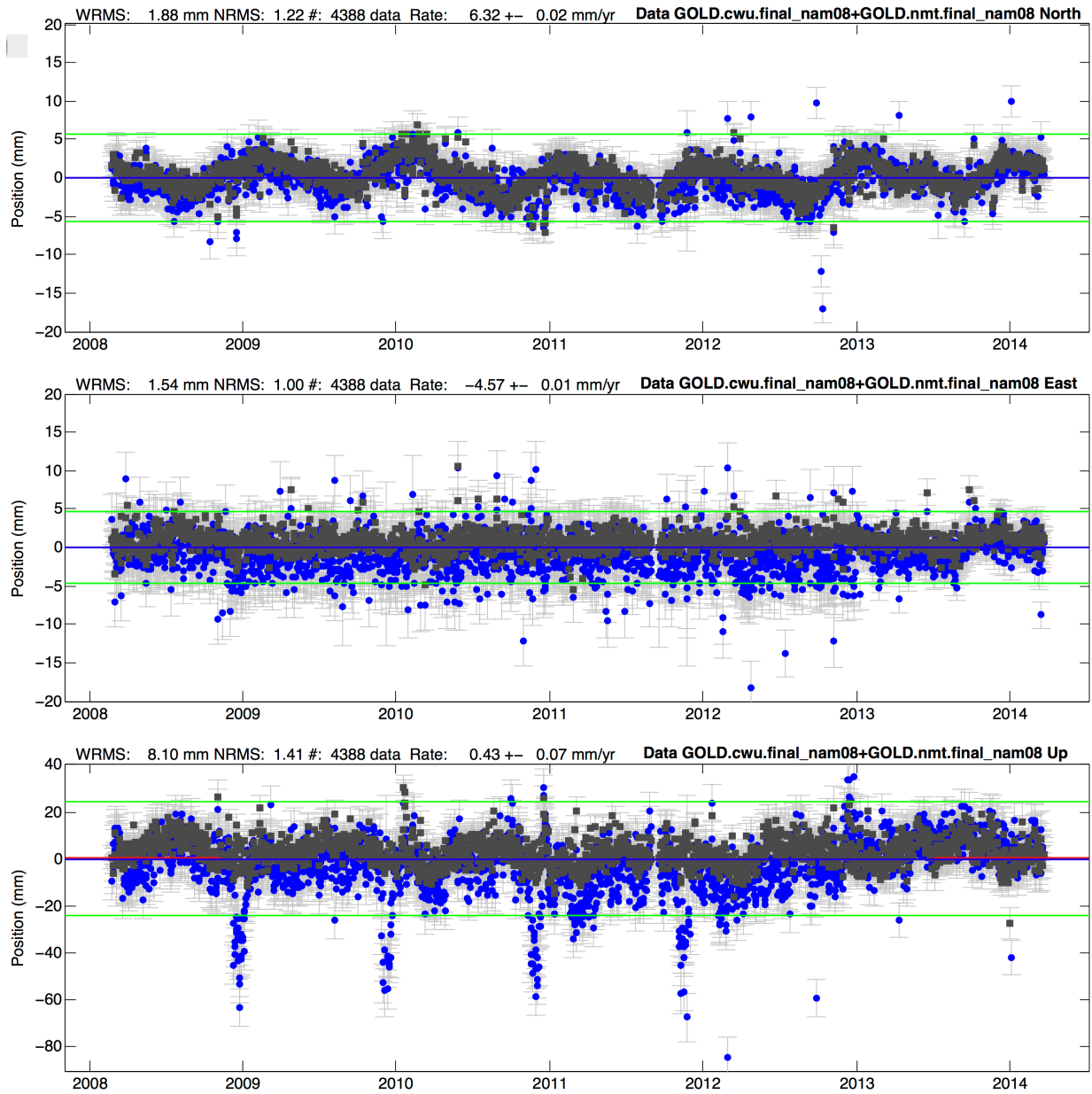


Figure 1a: Affected time series for station GOLD. The blue symbols show CWU detrended results in North, East and Up for the post 2008 Goldstone data. The black symbols show the NMT solution, which does not show the anomalous height deviation in late 2009-2012. The east scatter in general is higher the CWU solution. During the interval the WRMS scatters of the CWU analysis in NEU are 2.1, 2.4 and 11.8 mm compared to the NMT analysis with scatters of 1.7, 1.1 and 5.6 mm.

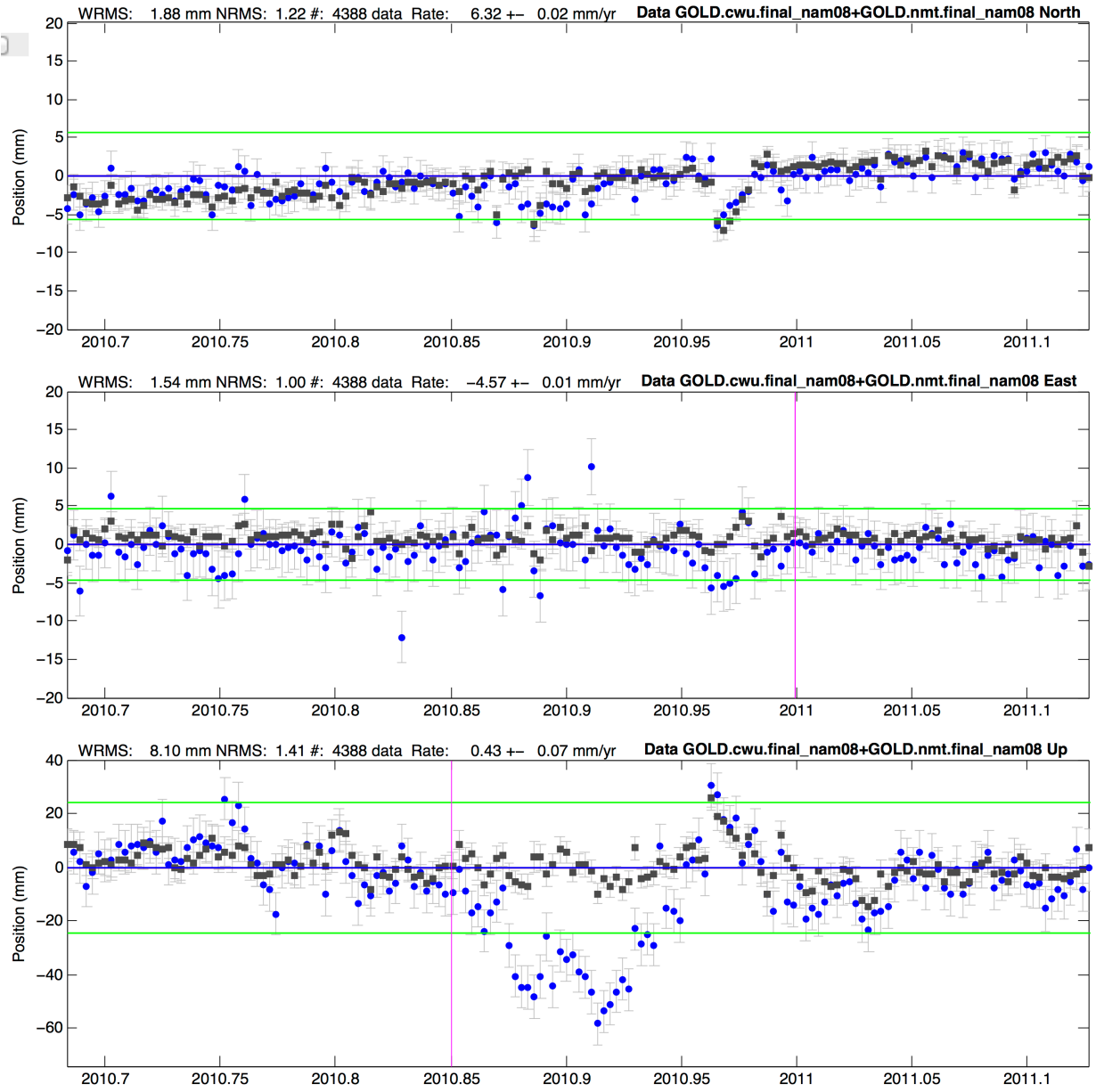


Figure 1b. Zoom of the affected time series for station GOLD showing the excursion is largest between Nov 1 and mid-December, 2010.

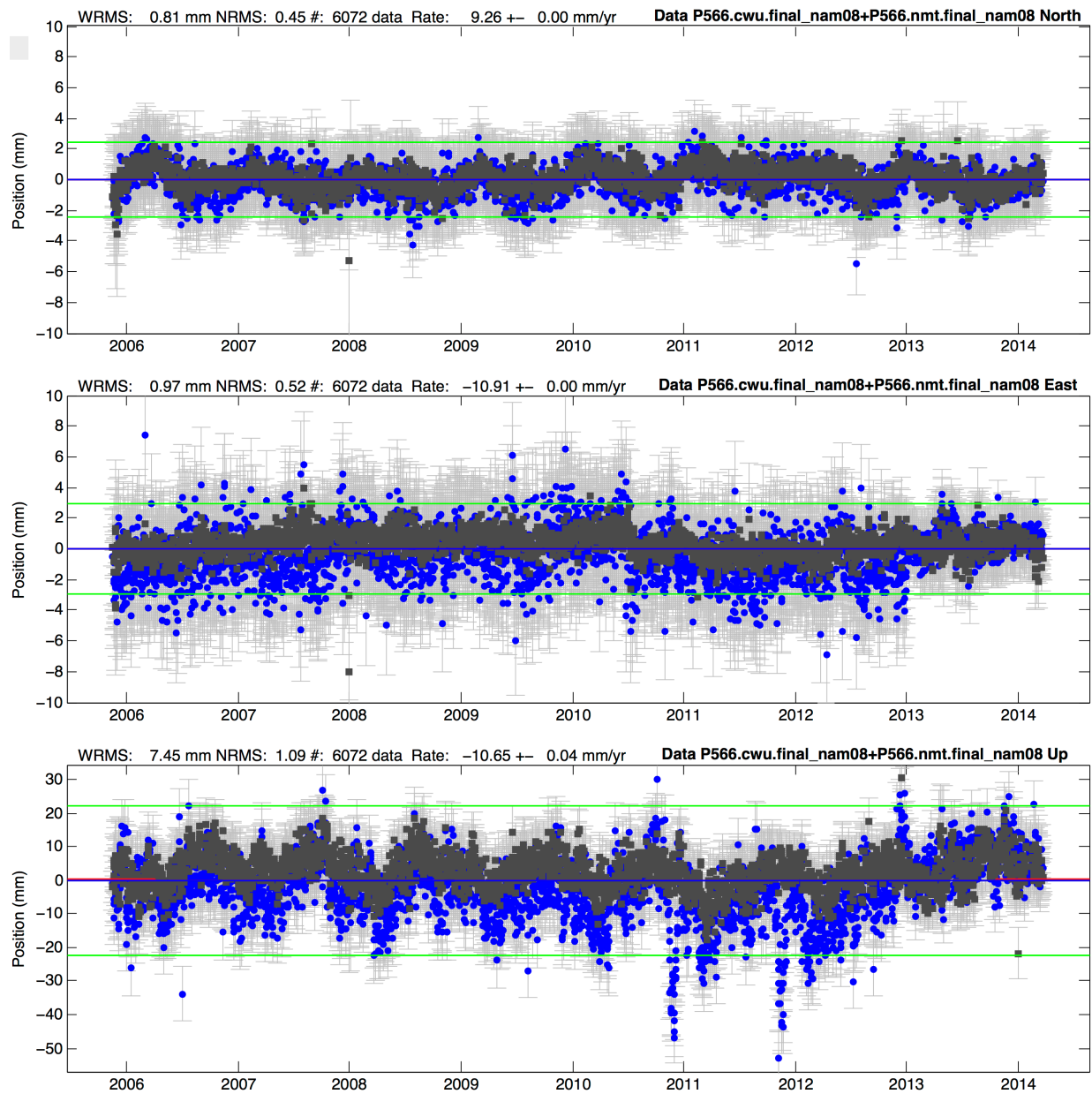


Figure 2. Affected time series for station P566. The blue symbols show CWU detrended results in North, East and Up. The black symbols show the NMT solution which does not show the anomalous height.

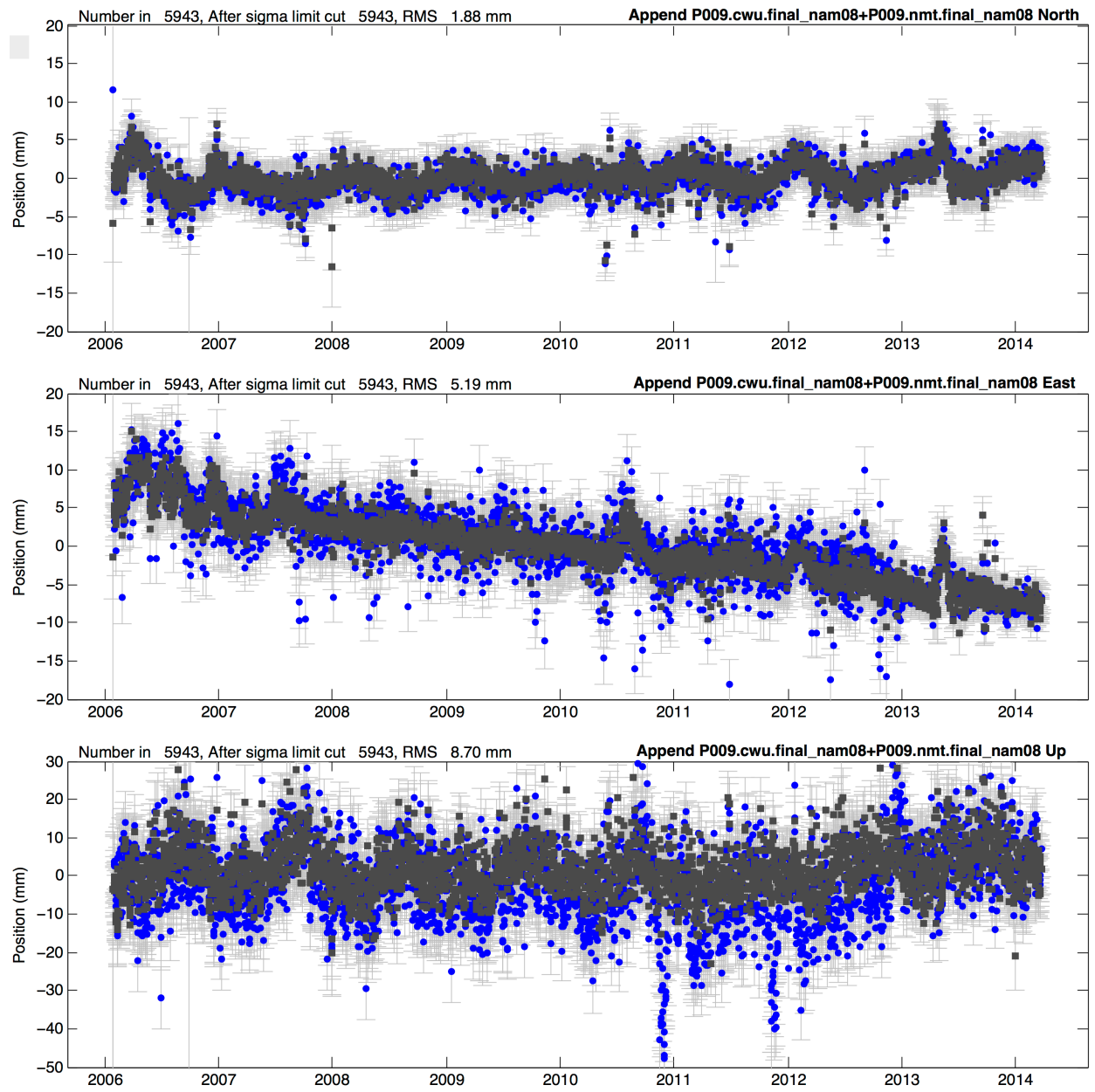


Figure 3. Affected time series for station P009. The blue symbols show CWU detrended results in North, East and Up. The black symbols show the NMT solution, which does not show the anomalous height.

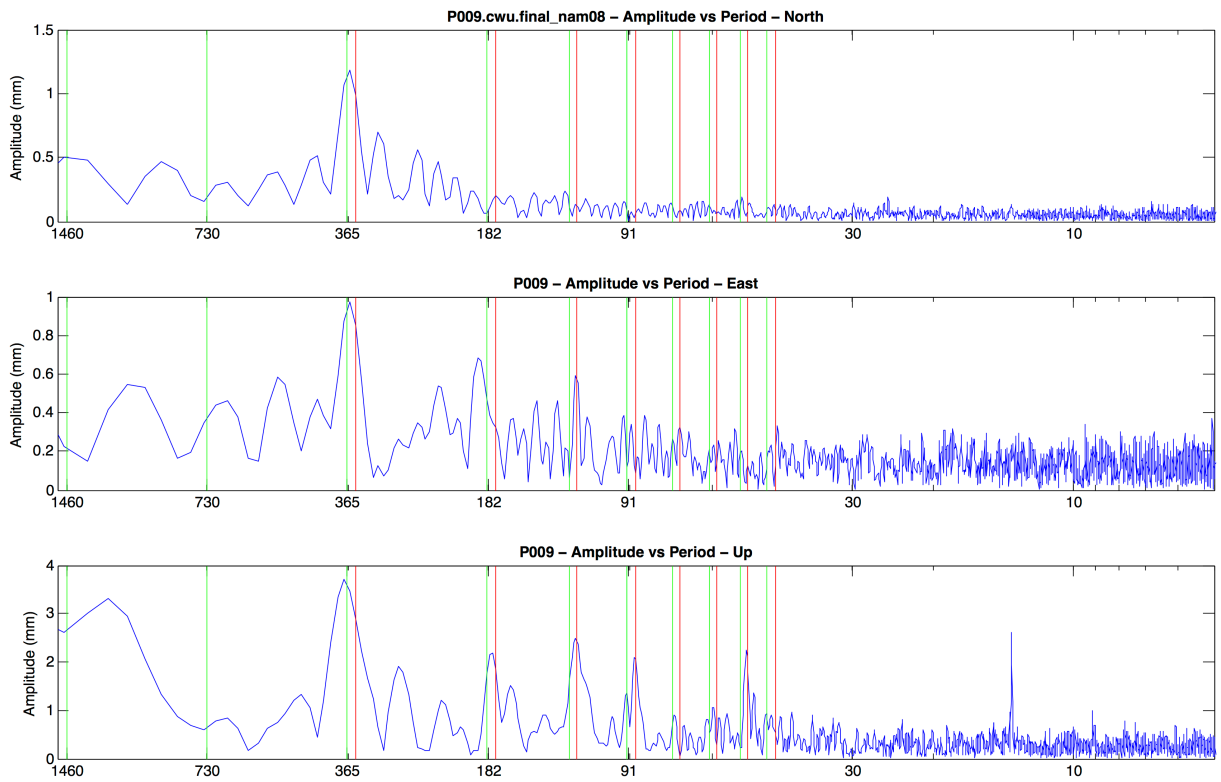


Figure 4a. Spectral analysis of time series for station P009 affected by aliased tidal signal artifacts (horizontal axis units = days). Note Up spike at 13.6 days.

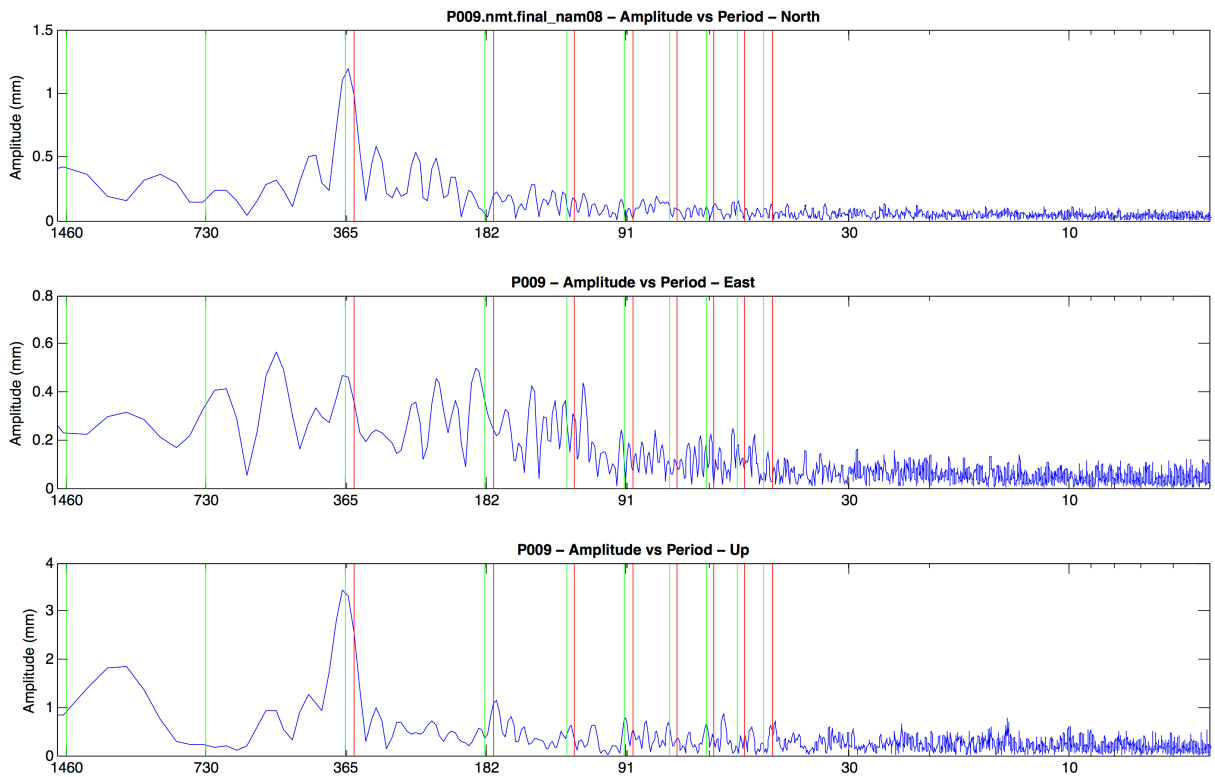


Figure 4b. Spectral analysis of time series for station P009 not affected by aliased tidal signal artifacts (horizontal axis units = days). NMT products did not contain any issues and are safe to use from any time period.