

December 21, 2020

**ILRS QCB Meeting
December 14, 2020
Virtual Meeting
Next Meeting January 19, 2021
9:00 EST**

Participants

Erricos Pavlis, Matt Wilkinson, Peter Dunn, Van Husson, Jason Laing, Mike Pearlman, Tom Oldham, Randy Ricklefs, Matt Wilkinson, Cinzia Luceri, Tom Oldham

The charts from the meeting are available at

https://ilrs.cdis.eosdis.nasa.gov/docs/2020/ILRSQCB_slides_20201214.pdf

See the charts for more detail.

Erricos Pavlis

Finishing up the Data Handling files, which will then go to Cinzia for verification and then to the AC's for processing.

The last 5 years of Graz NP data (45k of NPs) has been corrected for the malfunctioning barometer readings, and is available for the AC's. A general notice will be sent out. Due to the volume of data, the updates FR files will take a little longer by the OCs. Both the corrected data and the algorithm is available for user update. Graz has implemented a check system to avoid a reoccurrence of the barometer problem.

A bias ramp was apparent in the Graz data over the period of the last 10+ years. It is just below the 5mm "threshold of concern" in the bias modeling procedure, but its consistency for over a period of more than 10 years gives it added significance. Erricos and Cinzia will decide whether or not to include in the bias model.

Erricos has sent a response to Simosato outlining the steps necessary to straighten out their data logs; The Site logs should be modified to leave the Occupation number at 3 (since there was no change in the instrument position) and the flags need to be corrected. Van will work with the station on the flag issues. Changes in site logs must be done by the station.

Matt

OrbitNP.py version 1.1 will include:

- An option for full CRD normal point output file.
- Calculation of a '50' record if not included in full-rate CRD file.

- Input of 'System Configuration ID'

The peak-mean method is experimental for comparison with other peak determination methods. Peak positions in normal point bins were shown to vary during the pass.

For Comparison of Normal Point Formation Methods, FR range residuals for many Lageos 1+2 passes taken by Herstmonceux station were provided to Stefan Riepl for NP formulation using the Weiner Filter. Comparisons of NP results using the Gaussian Fit, Leading Edge Half Max (LEHM), and the Weiner Filter came to no conclusions. Since we are using residual values, the different normal point epochs have no impact. Slopes are still present in the differences between methods when plotted against normal point RMS. Work continues.

Randy

Randy has taken a first look at the OrbitNP.py version 1.1-point software and provided some initial feedback. For instance, CPF & CRD v2 files must be tried and made to work. Randy has been implementing changes to his version of the NP software based on the comments about peak-mean from the previous QCB meeting. He plans to use LAGEOS data from January 2020 from Hx, Zimmerwald and Yarragadee for testing with his and Matt's new code as these already have statistical information including peak-mean for comparison. Too much data to compare makes the job too cumbersome.

Van

The Yarragadee Etalon and Ajisai Center of Mass Corrections pre and post Event Timer installation seem suspect based on the magnitude of the 7- and 5-mm differences; respectively. Jose will investigate.

Troy Carpenter compared the 2011 and 2018 local Monument Peak surveys and was able to determine that not only did both calibration piers move a few mm horizontally, but also the system reference point moved a few mm horizontally. The net impact of these movements was a 9.1 mm change in the relative calibration target distances.

Based on the MINICO results since the Nov 2011 survey, these movements of the calibration piers and system reference point may have been gradual and possibly still ongoing. Some follow-up analysis will be done to determine if some of the MINICO outliers have a logical explanation.

Based on the linear 1.2 millibar drift in the Graz SLR barometric sensor and the relatively close proximity (600 km) of the Zimmerwald SLR station, a comparison of Zimmerwald and Graz barometric pressures were performed to see if millibar level changes in either station could be detected. Based on this analysis, perhaps a sudden jump of 4 to 5 millibars in one of the station's barometric measurements may be detected using this technique.

Issues:

1. Stress Stations need for stable configurations;
2. More stress on long and short stability rather than NP rms
3. Stress need for up-to-date history logs;
4. Stress need for redundant barometers;
5. Stress need for frequent calibrations (ever 2 hours or at systems changes)

Next Meeting: January 19, 2020. 9:00 am EST US