AGENDA

Briefing on ASC Meeting on May 11   (10 min)   Erricos Pavlis.

Station Briefings – focus on new/CORE sites (5 - 10 min each)
What is happening? Projected operations?

Japan Network	Toshi Otsubo
AGGO Station	Stefan Riepl
Yebes Station	Jose Rodriguez

The path to improved data Integrity (30 min)   Peter Dunn
    Process and Benefits
    Identify course of action
    What is the relationship between the C/M corrections derived by Jose (and others) and any correction that we would make for skew, kurtosis, etc.)
Station data: Recent Issues (15 min)   Van Husson

The charts from the meeting are available at
https://ilrs.cddis.eosdis.nasa.gov/docs/2020/ILRSQCB_slides_20200514.pdf

Participants

Erricos Pavlis, Frank Lemoine, Matt Wilkinson, Peter Dunn, David Sarrocco, Randy Ricklefs, Stefan Riepl, Toshi Otsubo, Van Husson, Jose Rodriguez, Mathis Blossfeld, Tom Varghese, Jason Laing, Graham Appleby, Tom Oldham

Were Marshall Finch and Tom Oldham there? Did I miss anybody?

ASC Meeting on May 11 (Erricos)

Completing Systematic Error modeling; next step is the LARES SINEX files. Reprocessing of the full data sets from 1993 planned for completion in October/November time frame; then test submissions of ITRS and reprocessing of the data from 1983 – 1992. The CC's will be combining yearly batches of data as they become available to identify issues and problems with the AC. Last two

months of data will be reanalyzed and recombines in January; Product delivery scheduled for end of February. Expect to see significant improvement in ILRS scale with the new satellite C/M models from Jose and the systematic error modeling.

Network Reports

Japan Network (Toshi)

- Tanegashima; SLR operations now operated remotely from Tsukuba; developing Khz SLR for deployment in Tsukuba in 2021, about 20 km from new Ishioka VLBI.
- Simosato SLR upgraded to Khz in 2018; survey with GNSS conducted in 2020.
- Koganei SLR and VLBI operations since early 1990's; Retirement of Hiroo Kunimori soon.
- Small-size SLR project initiated. Possible move to Antarctica in 4-5 years.

AGGO Station (Stefan): VLBI, GNSS, Gravimeters (absolute and superconducting) time and frequency keeping, met sensors and hydrological measurements operational; SLR in process of modernization with expectation of operation in 2020 -2021 timeframe. Negotiating 10 years continuation.

Yebes Station (Jose): Part of the in process RAEGE network involving Gran Canaria, Flores, and Santa Maria; at Yebes, VGOS in operation; tender being prepared for SLR system with 3 specified 3-year delivery.

Improved data Integrity (Peter)

Many (most?) SLR sites are not fully compliant with their data statistical information required in the data format. The stations need a push. Charts showed systematic effect as single shot rms increased. The question is how much of this effect is already accommodated in Jose's modeling of the satellite center of mass correction for the geodetic satellites.

In Jose's C/M modeling, he convolves the transfer function of the satellite with that of the ranging systems. The models for the transfer functions of the satellites are derived from ranging data taken at Herstmonceux (single photon, high rep

rate, etc.) and some modeling of the satellites. The ranging system transfer function is derived from data return rate statistics and information from the station site logs. The satellite C/M is the difference between the reference points on the modeled distribution from the satellite and the calibration, considering the specific data reduction methods employed at the stations. Information on the Normal Point statistics are included in Jose's Satellite C/M modeling.

There is still some "residual" information left that probably aliases the data; this should be investigated. Peter will lead an activity to quantify the "residual" using the information/FR data that we already have on file and recommend a course of action.

There is some confusion in terminology ("biases", basis of "RMS", etc.) that need to be clarified (maybe at the CB).

➔ Some of Toshi's charts used by Peter had insufficient information for the reader to understand; Since these charts seem used as examples for data quality and diagnosis purposes, it would be very helpful if Toshi could annotate these charts to make it easier to understand – which populations of data were used, is the interval days, years, etc., how were quantities derived, etc.? Maybe some explanation. See Annapolis WS proceedings. https://cddis.nasa.gov/lw19/docs/2014/Papers/3141_Otsubo_paper.pdf

In general, it would be helpful if folks would label their charts better, so that the read could understand what he is looking at.

Van provided this information about Toshi's charts used by Peter.

Toshi's analyses charts came from his yearly aggregation reports. The x-axis was single shot RMS. Toshi solves for coordinates and range bias using station normal points, then he aggregates the normal points residuals as a function of different parameters (e.g. hour of the day, single shot RMS, day of the week, system delay, etc.). In the plots, the normal point residuals are aggregated versus single shot RMS obtained from each normal point. The displayed trend shows a systematic

error in the normal points. The increase in single shot RMS indicates that in those normal points, Herstmonceux was seeing deeper into the spacecraft (seeing more rows). This trend is seen with all 4 satellites (LAGEOS, Ajisai, Starlette, Lares).

We did not get to Van's material this meeting. Next time we will get an update from Peter on the data integrity issue, reports on the Open-Source NP testing and other strategies for NP formulation (Randy, Stefan, Matt) and the report from Van. Anything else?

Mike