

Session 1: What are the SLR requirements from our Users and how well are we addressing them

GGOS

- Primary requirements focused on the mm reference frame
- International and political recognition (UN-GGIM)
- **Focus efforts on our real strengths**

User Survey

- About 66 responses; most satellites in our roster are being used;
- User requirements range all the way up to 100 passes per week;
- Accuracy requirements ranged from mm's to cm's;
- More global coverage
- Some applications agreeable to campaign tracking;

User Comments

- Reference Frame:
 - Requirement mm data accuracy; uniform core network of about 32 sites and uniform data in quantity, quality, and continuity; 600 passes/yr on the reference frame satellites;
 - Reality: we currently have a TWELVE-SLR site network to depend on, the contribution of the other 28 sites is marginal...
 - SLR must deliver the origin and scale of the TRF, but at the same time, our tracking of the GNSS constellations must ensure they are calibrated, properly scaled and centered at the TRF origin;
 - We must stop showing nice plots including sites that have not delivered data in decades;
 - Above all, take advantage of all of our new and better targets
- Altimeters: Validate orbit quality and instrument calibration; global, consistent coverage,
 - SLR data as a diagnostic tool; better global coverage
 - Modeling differences and changing SLR biases at mm level make this problematic

User Comments

- GNSS
 - Critical for distributing the reference frame but also improving the scale
 - 60 SLR observations are sufficient to determine multi-GNSS orbit of an average quality (for inactive satellites).
 - **Orbits calculated from 100 SLR observations (pass segments) from 10 evenly distributed SLR stations should provide cm-level of accuracy,**
 - Need broader global.

SLR Network Performance

- All of the current satellites on the roster have application to Space Geodesy;
- Great disparity among the performance of the stations; about 1/3 of the satellite meet the (3500 pass) pass guideline for the full satellite complex and the 600 pass guideline for the reference frame satellites;
- Nearly half of the stations have very small (or no) impact on the network data products and applications; some of these stations are in upgrade status;
- Some of the stations have NP precision above a cm.

Operations

- Alternative methods of rating stations performance
 - Weighting the acquired data by priorities, recent data history, difficulty of acquisition, etc.
 - Weighting by data quality
- Priorities
 - ILRS roster used as general guideline with adjustment for local conditions
 - Some stations mix these with their own priorities
- Predictions
 - Suggestion of vetting the predictions
 - With several prediction providers, not clear that we have a prediction issue
 - No predictions, no tracking
- Impact of support for non-space geodesy Applications
 - Space debris, astrometry, other targets, etc.
 - Some stations built and supported for other applications
 - Vary by station; Graz – less than 10 %
- Network Projection Model