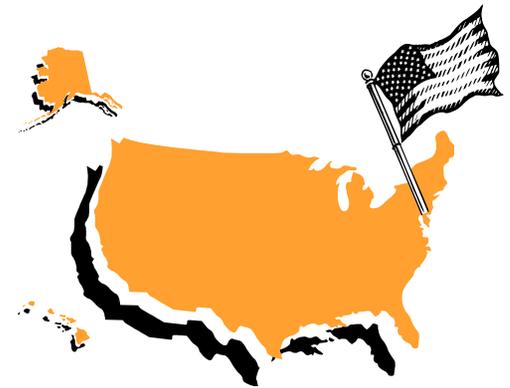




Session 12

From GNSS to Lunar

Andrey Sokolov
and
Scott Wetzel



Governor Calvert House, Annapolis, 31 Oct 2014

Session 12 Oral Presentations



- **3114 – Early Results from New Initiatives on SLR Tracking of GNSS and Synchronous Satellites – Pearlman**
 - Number of campaigns with varying success – GNSS (increased GNSS data without degradation of LEO/LAGEOS)
 - IRNSS simultaneous tracking – Some success with a few systems tracking
 - RadioAstron – Only some success, thanks to the Laser Optical Locator near Arkhyz, Russia and Grasse – highly elliptical orbit (to say the least)
- **3024 – New Ideas in Retroreflector Array Development – Sokolov**
 - Many new and creative designs for LRS for wide range of SLR applications
- **3053 – Status of the GPSIII Laser Retroreflector Array – Thomas**
 - After many years of NRL/ILRS cooperation in SLR and working to get SLR on GPSIII LRA ETM is in process with 2015 delivery
- **3067 – Accuracy Evaluation of QZS-1 Precise Ephemerides with SLR – Kasho**
 - New modeling in QZS-1 shows good results with improvements in process to error sources.
- **3082 – Thermal & Optical Characterization of a GNSS Retroreflector at the SCF Lab**
 - SCF results for the new GRA show good thermal stability and will be proposed for 2nd generation Galileo LRA
- **3070 – Processing 20 Years of SLR Observations to GNSS Satellites – Sosnica**
 - SLR to GNSS is an important tool in the validation of GNSS orbits, in the assessment of solar radiation pressure modeling and in the co-location of techniques of satellite geodesy. Understanding the many different types of arrays is important in reaching these conclusions

Session 12 Poster Presentations

3037 – BDS Satellite Orbit and Clock Determination based on MGEX Data – Chunmei
• **Improvement in clock determination yields an improvement in MEO and IGSO satellite OD**

3065 – Daylight Tracking GNSS in Changchun SLR Station – Hani
With improvements in system (receiver, camera, filtering & pointing has allowed for daylight tracking successes

3106 – Science Trades for Weight and Deployment of LLRRA-21 – Currie

3140 – Some Results of the GLONASS SLR Data Analysis in IAC PNT – Glotov

3147 – Laser Ranging to Galileo, an ASI-INFN Project of the Italian Ministry of Research – Dell’Agnello

- **Providing an advanced performance characterization capability of laser retroreflector arrays in a near realistic environment continues to evolve**

Additional related poster

3167 – Retroreflector Using a Birefringent Wedge for Efficient Velocity Aberration Compensation – Vasiliev

- **A new in interesting way of compensation for velocity aberration is demonstrated external the cube corner reflector itself**

Session 12 Summary

- **The importance of GNSS and above tracking has increased with the number of participating constellations.**
- **Targeted tracking campaigns to improve mission goals have provided a wealth of information.**
- **The accuracies of the LRA's can reach 1mm with the new systems that are becoming available through improvement or new technologies**
- **Also improving our way to test and validate these arrays prelaunch can further improve the arrays.**
- **And new techniques of LRA for velocity aberration compensation expand our capabilities.**