

Introduction to GNSS Session B

- In Session GNSS-A yesterday, all the GNSS operators and several analysts set out their requirements for laser support
- Overall, the message was ‘need more Normal Points’ on all satellites;
- Specifically-
- Long-term, likely that all GPS vehicles will need SLR support at a level TBD;

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- The Galileo mission is using SLR to significantly improve SRP models and to quantify clocks' behaviour
 - GNSS-based POD benefits
 - The mission “needs higher priority for SLR tracking of the Galileo satellites”
 - If “increase in ILRS priority, then more tracking will follow”
 - Interesting test of gravitational redshift – may need full coverage of passes of two vehicles

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- GLONASS – clear need for SLR tracking for POD, force model improvement
 - The LARGE campaigns showed high potential in SLR, but “need 2x current number of NPs”
 - To exploit *full* potential, need more NPs per ‘arc’
- BeiDou – GEO, Inclined GEO, up to 24 MEO
 - Testing SRP models and POD, time transfer
- QZS – some specific ILRS stations particularly important within the programme

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- Overall, geodetic community (GGOS) aim is for all satellites to be **accurately** referred to ITRF
 - Allow wide dissemination of the frame
- The challenge now for ILRS stations is clear.
- In this Session-B we will hear how the ILRS has responded and will respond to the higher demands both through existing data-yield and from stations' extra efforts;
- Plus efforts to improve the LRAs on future SV

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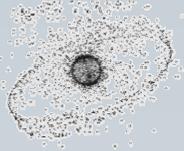
- We want to stimulate the continuing discussion between the ‘providers’ (ILRS) and ‘users’ (Missions, scientists)
- How best can (limited) resources both rise to the challenges and be ‘recognised’ for having made the effort to do so
 - Very important scientifically and financially

Are we Getting Overloaded by Tracking Requests?

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2015 ILRS Technical Workshop, 26–30 October, 2015, Matera,
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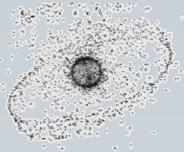


Are we Getting Overloaded?

Hard to say!

Single Station Perspective (Zimmerwald):

- **Status:**
 - Among most productive stations
 - 20% optical observations
 - xx% space debris tracking, different experiments
 - 20% overhead due to switching between optical and SLR observations and between SLR satellites
 - **Possible Improvements**
 - Reduce switching overhead (including s/w and h/w improvements and more sophisticated scheduling)
 - Improve scheduling when partially clouded (use information from all-sky camera)
- ~20%(?) more productive observation time**



Are we Getting Overloaded?

Open Issues:

- Load balancing?
 - Simple priorities may not be sufficient
 - Elaborate requirements for GNSS tracking, e.g. several tracks per pass (begin, mid, end, ...)?
→ will require sophisticated scheduling!
- Performance Metrics?
 - Number of normal points?
 - Well balanced between requests and priorities?
 - ...?
- Future?
 - Load balancing in the network?
 - Taking into account capabilities, geographical distribution, etc.
 - Require requesting parties to perform simulations in order to justify/optimize tracking requests (“as much as possible” is not enough)