

Report from NESC meeting on Thursday 10th July 2025

NESC held a meeting on 10th July on Microsoft Teams with **38** participants online.

Wettzell Automated SLR – LIVE Demonstration

We unfortunately did not get the clear skies over Wettzell we were hoping for and so we weren't able to see a LIVE demonstration of the automated SLR stations. However, **Johann Eckl** was able to take us on a detailed tour of the systems that make automation possible. The 3 pillars for automation are laser safety, system monitoring and scheduling and control. A full risk analysis has been conducted to national standards and an operations manual produced, conforming to CE standards. Staff members from outside disciplines are able to start and monitor the SLR systems. To aid automation, the WLRS system repetition rate was increased to 667 Hz by upgrading the transmit/receive switch. Johann showed the software, browser based, user interface that displays the telescope position, the real-time return residuals and other status and control components. There are sensors in case of rain, but these are slow and usually the operator shuts down the system. The schedule display shows upcoming passes as well as past observed segments. A one-pixel IR sensor scans the sky and provides cloud cover information for scheduling. System monitoring is performed using web based tools Zabbix and Grafana and includes plots of system delay, meteorological data and range bias.

SOS-W Automatic Scheduler

Stephan Riepl described the scheduler in operation at the SOS-W station in Wettzell that selects the satellite targets for SLR tracking. It optimises observing geometry and prioritises lower altitude satellites and satellites that have not received much tracking in recent days. A pre-defined schedule is set, which can be updated by the real-time scheduler. The cloud sky image data is used to raise the priorities of available satellites. The minimum observation time is 60 seconds. For geodetic satellites, 8 normal point windows are allocated. The scheduler is able to interleave between coinciding passes, such as Jason-3 and Sentinel-6A. The scheduler has been adapted in the past for tracking campaigns that require different priorities.

Automation in the ILRS

Automation will likely have an increased role in the ILRS network in the future. **Daniel Hampf** reported that the DiGOS team have been working towards automation for a number of years and can currently operate in a remote supervised automation mode. System safety remains a challenge, including shutdown before the arrival of rain. The motivation for automation is to increase data yield within a given operational budget.

GENESIS Updates

The GENESIS mission will be significant for geodesy because it aims to increase ITRF accuracy by providing multi-technique in-orbit co-location. The retro-reflector will be designed to provide a good return signal, but must also allow for accurate measurements. **Clément Courde** presented the current questions on how the centre-of-mass offset can be measured. The original specification is from 0.5mm (1 sigma) accuracy, but this will be challenging to design and manufacture. This requirement was recently updated to 'better than 1mm (3D, 2 sigma)'. Once built, the accuracy of the array could be confirmed at the proposed LaRCO facility, or with another instrument such as an NMI distance meter, or at an SLR station. It may prove straight forward to measure single retro performance but harder to sample the whole array.

The presentation slides from the meeting will be available here
https://ilrs.gsfc.nasa.gov/network/newg/newg_activities.html

The date for the next NESC meeting was set as **Thursday 18th September at 1300 UTC**

If you missed the meeting and would like to catch up, please send me an email
(matwi@nerc.ac.uk) and I can provide the recording.