

Report from NESC meeting on Thursday 13th March 2025

NESC held a meeting on 13th March on Microsoft Teams with 35 participants online.

LaRCo – Laser Range Correction Test Facility

Simone Dell'Agnello was invited to share his idea for a laser range correction facility at the Frascati National Labs, Italy named *LaRCo*. This facility would characterise the signature responses for upcoming ILRS target retro-reflector arrays in order to determine the range corrections needed at stations, in particular for spherical arrays. The upcoming GENESIS mission is working towards a semi-sphere LRA design. Range corrections currently in use were calculated from the known cube locations on the array and the theoretical range correction for LARES-2 is calculated with 2mm accuracy. The measurement accuracy aim for GENESIS is 0.5mm. For comparison, Krzysztof Sosnica said that atmospheric models are currently accurate to about 1mm above 15 degrees elevation. The measurement process would require involvement from the ILRS community and colleagues would be invited to visit the LaRCo lab to supply the details of the detection processes at the stations. Simone is also asking for an endorsement from the ILRS to help secure funding.

The GGOS Bureau of Networks and Observations: Current Activities

José Rodríguez is the Director of the [GGOS Bureau of Networks and Observations](#), which is focussed on the operational component of the global geodetic supply chain. It is responsible in GGOS for developing “... a strategy to design, integrate and maintain the fundamental infrastructure in a sustainable way...”. It monitors the status, evolution and capability of the observational network and assesses the impact of changes to the network (such as new technologies) on key products. Ongoing activities include defining a Core Site, implementing GeodesyML data formats, site surveys and defining a robust global network for each geodetic technique. José presented an evaluation of network performance, highlighting stations that are under contributing and not significantly impacting the ITRF. He also presented some analysis results that deliberately excluded the Australian stations Mt. Stromlo and Yarragadee, which degraded the data volume, overall quality and the network distribution. This impacted the orbits, station coordinates, and Earth rotation parameters and demonstrates that the ILRS network is far from being robust.

Current SLR Activities at GFZ Potsdam

Julian Rodriguez is responsible for the laser ranging station in Potsdam (POT3) and he gave an update on the work carried out in 2024. Increased throughput was seen on both the transmit and receive paths after alignment and cleaning of the optics. The HighQ laser needs a replacement seed diode and has had problems with a temperature controller. This laser has been modified to extend its lifetime without compromising too much energy output. Alternatively, a Passat laser is available to use. Improved telescope (Tx and Rx) mount models using Fourier series and B-Splines were shown to achieve improved pointing results. Preparations are underway for the European Laser Time Transfer experiment and the station time signals are being closely monitored. New designs for the LRA for the future GRACE-C mission (2028) were presented. A new station, POT4, built by DiGOS, will be located on the original tower where SLR was first performed in Potsdam in 1968.

NGLR & Upcoming Meetings

Matthew Wilkinson presented slides from **Clément Courde** which highlighted the upcoming [Space Debris Meeting in Bonn](#) on **1-4 April** and the [GENESIS Science Workshop in Italy](#) on **3-4 April**. The Next Generation Lunar Retroreflector (NGLR) was aboard the Blue Ghost spacecraft that landed on the Moon on 2nd March. This is a single large retro-reflector. It has already been observed by the LLR teams in Grasse and Wettzell.

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 22nd May 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.