Report from NESC meeting on Thursday 6th April 2023

The NESC held a meeting on Thursday 6th April on Microsoft Teams with 4**3** participants online.

Report on SWOT and preliminary POD status

Alexandre Couhert presented orbit validation results using SLR ranges to the Surface Water / Ocean Topography (SWOT) satellite. This satellite was launched only recently in December 2022. SWOT will study the oceans and terrestrial water bodies at much greater resolution than previously. Orbits are generated using DORIS and GPS only, SLR is kept for independent orbit accuracy validation. SWOT is expected to manoeuvre in to its 'Science orbit' in July. The ILRS network is generating around 110 normal points per day for SWOT, which is lower than similar satellites such as Sentinel-6 or Jason-3.

Station update from Golosiiv, Ukraine

Mykhaylo Medvedskyy updated us on the status of the Golosiiv SLR station in Ukraine. It has undergone significant renovations, made necessary due to an inefficient and noisy primary mirror and problems with the rotating mirror. There is no mirror re-coating company Ukraine and so the team developed a novel approach of mounting two receiving 305mm aperture telescopes and a guide 250mm aperture telescope on to the original telescope body. The laser fires at 10Hz, but is only operating at 2mJ pulse energy. An A033-ET event timer is installed and a new range gate generator was developed. Remote control is possible with the new control software. Further work will include new telescope control hardware and software, a new PMT detector system and the laser requires maintenance. The new system is much more productive, but poor weather has prevented the acquisition of the necessary passes to get out of quarantine.

Tsukuba SLR Station

Shinichi Nakamura introduced the new Tsukuba SLR station, which is operated by JAXA and was manufactured by DiGOS. Construction was halted by COVID-19 and equipment was stored in a warehouse for 2 years. The telescope aperture is 60cm and the laser fires at 1kHz either at 532nm or 1064nm. Calibration is carried out using optical fibers. Aircraft avoidance is achieved using an active radar and ADS-B. The station is now fully operational and remotely controlled. Data is currently being held in quarantine.

ILRS daily NP – network drop in March 2023

Mathis Bloßfeld showed that the number of normal points submitted to EDC/CDDIS from the ILRS tracking network per day has dropped, with a low point of 57 on 25th March. Since August 2022 there is a long term decrease in data yield. He is concerned that there could be an impact on the quality of weekly solutions from Analysis Centers. The NESC discussed possible reasons for this drop in global productivity and station operators highlighted poor weather, inactive stations, ongoing maintenance, prediction quality, a high number of ILRS targets and staffing issues as contributing factors.

Invitation to LLR Workshop in Grasse 14-15th September

Clément Courde invited colleagues to a workshop on lunar laser ranging on 14-15th September in Grasse. The agenda will include the development of observing stations, the deployment of new lunar reflectors and the analysis of LLR data. It will include visits to the Observatoire de la Côte

d'Azur and the LLR MéO station and a gala dinner. A website is under construction: https://llr2023.sciencesconf.org. A new ILRS SC was recently established called the *Moon, Interplanetary ranging and Time Transfer standing committee* and is chaired by Clément.

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 8th June 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.