Report from NESC meeting on Thursday 7th September 2023

The NESC held a meeting on Thursday 7th September on Microsoft Teams with **32** participants online.

Laser Hazard Analysis Software for Airspace Applications

The NESC welcomed guest speaker **Robert Aldrich** and his colleagues from Rockwell Laser Industries. Robert gave a presentation on the SKYZAN software (https://www.rli.com/Products/Product.aspx?idproduct=787) which can be used to calculate laser intensity through the atmosphere for hazard assessment. The latest version 7 is about to be released and Robert gave a demonstration of the software interface. The user can select continuous or pulsed lasers and single or multiple wavelengths. The beam diameter and divergence must be supplied along with an estimate of atmospheric absorption. The resulting value is the slate distance below which the laser intensity can cause damage/glare to the human eye (Nominal Ocular Hazard Distance). The report can then be used by the laser operators to seek permission from the appropriate regulatory authorities.

Update on the G4S_2.0 ILRS Campaign

Mike Pearlman discussed the upcoming Galileo for Science campaign. This would use the accurate hydrogen maser clocks onboard the Galileo satellites to look at gravitational redshift, dark matter detection and the relativistic precession of the two Galileo satellites in eccentrics orbits. Following the request for 3 months of additional tracking of the Galileo constellation, with focus of the eccentric orbit satellites Galileo 201 and 202, a proposal was made by the ILRS CB for 2 weeks increased tracking on the eccentric orbits per month and 36 NPs on the other satellites per week, which would take the network 5 observing hours per week. This has now been adjusted to have 4 weeks tracking per month on the eccentric orbits, with fewer NPs, which could amount to 6-7 hours per week. The campaign is expected to start before the end of the year.

Missing Herstmonceux SLR Passes on EDC

Matthew Wilkinson presented recent work to look for any missing Herstmonceux pass files on the EDC server. This was achieved by taking a mirror of the EDC data folder then matching each pass file in the combined monthly CRD files. A total of 70 missing files have been uploaded to EDC files from 2013 to present. The reliability of the ftp server at EDC was discussed and the possible advantages of moving to sftp or https for upload. Also, it was suggested that this work could have instead used the EDC API to look for uploaded pass files.

ILRS Virtual Workshop

The ILRS Virtual Technical Workshop will take place on October 16th-20th. The sessions will be: Analysis, Missions/Science/Applications, Networks/Operations, LLR and Transponders and Space Debris. Colleagues are invited to submit abstracts for theses sessions and Matt Wilkinson invited members of the NESC to present at the Networks and Operations session which will be on Tuesday, October, 17th at 13:00 UTC.

Relative return signal between LAGEOS and LARES-2 at stations

Van Husson reported that the SLR station in Hawaii was getting a weaker signal on the newly launched LARES-2 geodetic target. Randall Carmen at the Yarragadee station agreed that this has become a more difficult target, similar to LAGEOS-2, rather that the stronger return signals achieved from LAGEOS-1. This seems to be the general experience of the NASA SLR network.

This variation did not align with the experience at the Herstmonceux or Wettzell stations. It was suggested that the spin of LARES-2 could have slowed, but it was thought that this satellite was not given any spin on launch. A survey of the network was discussed and also some analysis of the NASA data records.

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 16th November at 1400 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.