

## Report from NESC meeting on Thursday 15<sup>th</sup> September 2022

The NESC held a meeting on Thursday 15<sup>th</sup> September on Microsoft Teams with 44 participants online.

### *The miniSLR® - a low-budget, high-performance SLR system*

**Daniel Hampf** presented the progress of the miniSLR system, which was recently officially accepted as an ILRS Engineering Station. It is a fully functional SLR system designed to be as small as possible, transportable and to not require a dome. It uses a very small mount and a 30cm diameter aperture receiving telescope, which sit on top of a large water-tight, air conditioned box containing the timing and control hardware. Acquiring the preferred high repetition rate, sub-nanosecond laser was delayed, with an alternative now on order. Using an old nanosecond laser, SLR tracking to LAGEOS and GNSS has been achieved. Once completed, the miniSLR system will be able to contribute to geodesy, debris tracking and other applications. Commercialisation of this system is planned in the future.

### *Station Performance Plots – Existing Plots and Future Changes*

**Justine Woo** presented the plots available on the ILRS website. These include site meteorological data, LAGEOS performance, satellite tracking and satellite normal point information. These plots are interactive and they are updated each month. In the future, they will be replaced with a more modern web-based plotting platform and the community will have a chance to say what is most useful. It was thought that the plotted data could also be available to download.

### *Lares-2 CoM values*

**David Arnold** discussed calculating the centre-of-mass offsets for the newly launched Lares-2 satellite, which are needed in precise orbit SLR analysis. He can model the diffraction pattern of retro-reflector arrays and he showed response histograms of the active area compared to that of the diffraction pattern for LAGEOS and Lares. In both cases, these were different and David suggests that the diffraction pattern should therefore be considered in the CoM calculations. The full details of the Lares-2 retro-reflector design have not yet been released, but David was confident that it has improved thermal stability. He was concerned about its overall response, but others in the meeting reported that they have successfully tracked Lares-2 in the daytime with a good return signal. The document David provided will be available on ILRS website with the NESC meeting notes.

### *CRD v2 - The official ILRS data format*

**Randy Ricklefs** reminded the group that the ILRS has officially moved to CRD version 2 as of the 1<sup>st</sup> August. Stations should still continue to send both v1 and v2 until 1<sup>st</sup> October after which they can stop sending version 1 data.

### *Plans for the next NESC meeting, to be held in person at the ILRS Workshop*

The next NESC meeting will be in person at the ILRS Workshop in Spain. Full details are still to be confirmed. The meeting will be hybrid and include a remote Teams connection. The plan for the meeting was discussed and this would involve inviting speakers to give short summary presentations of the technical issues and limitations currently facing SLR applications. This would

include geodesy, Earth observation, time transfer, space debris tracking, laser communications, lunar laser ranging etc. The aim for these talks would be to spark discussion in the meeting.

The presentation slides from the meeting will be available here  
[https://ilrs.gsfc.nasa.gov/network/newg/newg\\_activities.html](https://ilrs.gsfc.nasa.gov/network/newg/newg_activities.html)

The next NESC meeting will be in **November** in person at the ILRS Workshop in Guadalajara, Spain.

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