

## Report from NESC meeting on Thursday 25<sup>th</sup> April 2024

The NESC held a meeting on 25<sup>th</sup> April on Microsoft Teams with **38** participants online.

### *Compact DPSS Q-Switched Lasers*

**Vincent Kumar** and **Saulius Frankinas** joined the NESC meeting to present the different lasers designed and manufactured at their company [QS Lasers](#) based in Lithuania that was established 6 years ago. The group have expertise in compact DPSS lasers for scientific and industrial application. The lasers are very small in dimensions and are based on diodes with harmonic generators. Pulse widths are available from 20ps to 3ns with energies of 1μJ to 50 mJ and repetition rates of 1-1kHz. The design most suited from SLR is called ANGIS which is 100μJ, 50ps pulses at 10kHz. The lasers are air cooled and so there is no requirement for any additional cooling system. The spectral width is less than 5.5pm. It has a divergence of less than 6 mrad and a beam quality of  $M^2$  1.1. The passive Q-switched laser design has been tested in accelerations up to 6g.

### *Sentinel-3 and -6 Yearly Report 2023*

**Eva Terradillos** and **Marc Fernández Usón** from GMV work in the ‘Copernicus POD Service’ and are responsible for the annual Sentinel-3 and Sentinel-6 reports which describe how SLR data is used by these missions to validate microwave derived orbit solutions. The SLR validation uses a combination of orbit solutions and a selected set of SLR stations. Station range biases are estimated per month and SLR residuals are plotted with and without these applied. Many stations have range biases of more than 5mm and for some this value was not constant from month to month. An issue was identified with the Zimmerwald station and the residuals were not presented and further investigation is needed. The final residual plots showed reduced residual scatter around zero when the calculated biases were fixed. It was asked how these station biases compared to those published in the Data Handling File from the ILRS Analysis SC.

### *ILRS Meetings Paper Index*

**Daniel Hampf** described the difficulty in finding past workshop presentations quickly that often requires searching through multiple websites. To help this, he has built a new website ([http://digos.eu/ILRS\\_papers/](http://digos.eu/ILRS_papers/)) that brings together all workshop papers for easy reference and searching. The website consists of a table that shows the year, location, title and authors for 1537 papers. At the top is a search bar which will filter displayed results. Each entry also includes links to download the presentation files. There were requests for complete entries of co-authors to be included and also for something similar for SLRmail.

### *ILRS Station Survey and Plan*

**Matt Wilkinson** updated the NESC on the progress drafting a Survey and Plan document that is intended for those stations not reaching the productivity levels required by the ILRS. The document asks a station to identify what might be limiting its performance and what could make a difference. It then asks the station to outline a plan to increase productivity in the near future. This document will be shared with the CB to finalise it and then to send it out to stations.

### *WESTPAC*

**Matt Wilkinson** returned to the subject of the old ILRS target WESTPAC, which is being reassessed as a feasible ILRS target. At the time of the meeting, Yarragadee had tracked the satellite 41 times and Graz had tracked it twice. Other unsuccessful attempts were made by Herstmonceux, Grasse and Wettzell. An issue was discovered with the NORAD number, which seems to have

changed from 25394 to 25398. The successful passes so far have been tracked using TLEs from the 25398 reference. Residual plots from passes were shown and these all displayed periods of tracking and periods of no tracking, which would fit with the structure of the target. CPFs have not yet been generated, although an early attempt was unsuccessful, perhaps due to the NORAD mixed up. The Data Center EDC was only accepting passes with the NORAD number 25394.

### *Galileo 4 Science*

The first phase of the Galileo 4 Science campaign is coming to an end. The next phase will give greater focus on the elliptical orbit satellites Galileo-201 and 202. The campaign website, <https://g4s-duepuntozero.iaps.inaf.it/>, has been updated with tracking statistics tables. Van Husson showed the latest version of his tables for the number of passes and normal points for each station and satellite.

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 date for the next NESC meeting was set as **Thursday 20th June 2024 at 1300 UTC**

**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.