

Dear NESC colleagues:

We had an early morning, yet well attended NESC meeting on Wed 12th October as part of the laser workshop in Potsdam. A summary of the items discussed follows below.

• **Beam divergence measurement procedure**

I presented the results from the procedure that was carried out at many SLR stations. The procedure works well for many stations and it is better to take a series of measurements on different satellites and over a few days to get an averaged value. Not all stations were able to carry out the procedure, however.

I summarised the results and uploaded the charts (sorry for the oversized images!) on the forum page here <http://sgf.rgo.ac.uk/forumNESC/index.php?topic=18.0>. Take a look and post your comments.

• **NESC forum**

I presented the new NESC forum for discussion. The forum aims to:

- 1 Strengthen the connection, communication and collaboration between international colleagues.
- 2 Exploit the wealth of experience and knowledge in the ILRS network to address problems that are common to multiple stations.

**I would like to ask all NESC members to now help to make this a useful and successful tool for our activities.** You can help by:

- Provoking discussion with your ideas and topics.
- Sharing your knowledge and experience.
- Providing prompt responses to encourage users.

• **Stations Changes File online editing**

Christian Schwatke was invited to present his proposal for editing the Stations Changes File online. Users would sign in to an account on the EDC webpage to edit the file, which would then be checked for formatting and saved. The NESC agreed that this was a good proposal. Christian may require more specific feedback from users when this tool becomes available. There will also be API access to the files for programming. If this proves to be successful it could be possible to also update the ILRS station Site Logs this way.

• **"What is needed to address systematics?" questionnaire**

At the meeting I summarised the questionnaire responses i received with the bullet points presented below. Many thanks to those that responded, i think this is a helpful start to identifying what more can be done at the stations and also what further feedback is required from analysts.

**What do you do to identify systematics?**

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| <ul style="list-style-type: none"><li>• System Calibration time-series</li><li>• Regularly check data centre report cards</li><li>• NERC, SGF short-arc analysis</li><li>• Bias QC reports from Toshi</li><li>• T2L2 system calibration</li><li>• Comparison of meteorological devices</li></ul> | <ul style="list-style-type: none"><li>• Long-term time-series of several parameters</li><li>• Check PMT amplitude correction with different amplitudes</li><li>• Discriminator tests</li><li>• NERC analysis pages</li><li>• Toshi emails if large bias</li><li>• Rely on outside analysis</li></ul> |
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**What presently are the most important sources of systematic error?**

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| <ul style="list-style-type: none"><li>• Receive intensity fluctuations</li><li>• Noisy data</li><li>• Signal level dependent bias</li><li>• Errors in calibration</li><li>• Incorrect use Centre-of-Mass value</li><li>• Meteorological data is important</li></ul> | <ul style="list-style-type: none"><li>• Temperature fluctuation changing SPAD voltage</li><li>• PMT amplitude correction function</li><li>• Temperature influence</li><li>• Calibration fluctuations</li><li>• Stuck data bits</li></ul> |
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Do you have the tools you need?

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| <ul style="list-style-type: none"><li>• For the moment, yes.</li><li>• Need assessment of orbit modelling quality to see bias unambiguously.</li><li>• Need to be notified of a bias as soon as possible.</li><li>• NO</li><li>• Bias characterisation is needed to avoid false alarms</li></ul> | <ul style="list-style-type: none"><li>• Further co-operation is needed</li><li>• Assessment of bias with several parameters (temperature, elevation, time of day etc.)</li><li>• Detecting is easier than minimising</li><li>• Suggestion for an online tool to upload test data and see bias reports without going "official".</li><li>• Would a it be worth compiling a list of known systematic sources so that stations with problems can get ideas for where to start looking?</li><li>• Is more required from data analysis?</li></ul> |
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With regards

Matt Wilkinson  
NESC Chair

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Space Geodesy Facility, Herstmonceux, UK  
<http://sgf.rgo.ac.uk>