

2nd CIRCULAR for the

*"17<sup>th</sup> International Workshop on Laser Ranging" and the  
"23<sup>rd</sup> General Assembly of the International Laser Ranging Service"*

Theme: Extending the Range

The "Bundesamt fuer Kartographie und Geodaesie" (Geodetic Observatory Wettzell and TIGO), the „Research Group Satellite Geodesy of the Technische Universitaet Muenchen“ and the International Laser Ranging Service (ILRS) are pleased to announce that the 17<sup>th</sup> International Workshop on Laser Ranging is scheduled to be held in Bad Kötzing (Germany) during the week of May 16-20, 2011.

**Workshop Outline:**

The aim of the Workshop is to bring together for stimulating discussion and problem-solving the scientists and technologists who have an interest in the laser ranging technique and its wide-ranging scientific applications. Prior to the Workshop, there will be a full-day meeting of the Analysis Working Group.

The first day of the workshop will be devoted to **invited science-based talks** that will address, among others, the following questions. How well is SLR/LLR supporting current science missions (e.g. GGOS, ITRF maintenance, international time transfer, international space missions, etc.) and what improvements are needed/desired by the science community to support future missions and to enhance the science product.

On Tuesday-Thursday there will be a series of **Interactive Sessions** that will address the aforementioned science needs as well as the SLR and LLR operational issues set out below.

On Wednesday afternoon there will an extended **Poster Session** with the theme 'Station Status and Recent Upgrades'. The authors of the posters will be present during the Session to encourage discussion.

On Friday there will be a **Summary and Discussion Session** and the **23<sup>rd</sup> ILRS General Assembly**. It is our intention to adopt some resolutions and "paths forward" to guide us in meeting future laser ranging requirements.

Meetings of the **ILRS Governing Board** and the various **Working Groups** will be held during the week of the workshop. The Analysis Working Group is scheduled to meet on Saturday, May 14<sup>th</sup>.

## Workshop Goals:

The program committee has identified a number of urgent goals, which will be addressed during the workshop and which will necessarily involve exchanges of ideas between scientists, analysts and laser-ranging practitioners. For the general format of the workshop, we are very much encouraging discussions, and all delegates should come prepared to participate and contribute. Contributions for the questions put forward below supported by slides are especially welcome. If you have done specific work on these subjects, please indicate this to the Committee. Most importantly, the Programme Committee will shortly be contacting potential session leaders who will be asked to put together Position Papers on the various topics. These urgent goals are identified below and include:

### Spatial and Temporal Coverage of Current SLR constellation

- Station performance and data throughput; are we meeting the science needs?
- Where do we need new stations or enhanced observations?
- How are we doing with daylight ranging and how do we improve it?

### Atmospheric Refraction Correction: Hardware vs. Modeling Approaches

- Refraction modeling; where are we and what are the next practical steps?
- Are we getting anywhere with multi-color ranging? Do we need it?

### Ranging Accuracy and Calibration

- How do we enable communications between analysts (who can measure accuracy) and operational stations (who strive to improve it)?
- How do we get to robust mm accuracy ranging performance?
- How do we improve data QC at stations?
- How do we improve system calibration?
- Do we need more standardization in hardware, software and procedures?

### Ranging to GNSS and other challenging high altitude missions?

- Conventional vs. kHz Photon-Counting: Pros and Cons
- What new hardware should we be considering?
- How should operations change with the large number of satellites that we may be supporting? (For example shorter normal points with higher repetition-rate systems)
- What are the best options for retroreflector array designs on GNSS satellites?
- How do we accurately measure beam divergence and standardize the procedure?

### Lunar and Planetary Ranging

- What are the scientific and data requirements for lunar ranging? Do we need more LLR-capable stations and where?
- What is our current network performance? Are we meeting any of the scientific needs?
- What can we do in the short term to improve our lunar ranging performance?

- What new SLR technologies or capabilities must be developed to support future missions (e.g. lunar and interplanetary ranging, orbit determination about extraterrestrial bodies, general relativity and fundamental physics, etc.)?

#### Interaction between Data-User and Stations

- Are the right feedback tools available and how are the stations using them?
- What else does the analyst need from the engineer and vice versa?

#### Other Topics

- Experience with the engineering data file; who is using it?
- Local survey: where do we stand and how can we improve our situation?
- Laser safety: recent experience and what are stations doing?
- What are the major modeling issues (system biases and orbit modeling)?

#### **Organizational details:**

The registration fee for the workshop is **150 Euro**, including a field trip to the observatory with barbecue in the evening and a joint conference dinner.

We also offer an interesting spouse program for accompanying persons during the conference. We expect the fee for that to be within **60 – 80 Euro**, depending on the number of participants. Please indicate interest early in order to make life easier for the local organizing committee.

Additional information about the Workshop, the hotel, the area, the venue, etc., can be found at the following web page:

<http://www.fs.wetzell.de/veranstaltungen/slr/17thlaserworkshop/index.html>

Further questions should be addressed to [17workshop@fs.wetzell.de](mailto:17workshop@fs.wetzell.de) or via fax to "17 workshop-laser" (+49 9941 603222).

Note: For those who may be interested in hosting the **18<sup>th</sup> Laser Ranging Workshop**, please come to Bad Kötzing with a tentative offer.

Programme Committee:

- Stanislaw Schillak
- Johannes Ihde
- John Degnan
- Yang Fumin \*
- Ulrich Schreiber
- Ben Greene
- Graham Appleby
- Erricos Pavlis
- Mike Pearlman
- Ludwig Combrink
- Hiroo Kunimori
- Scott Wetzel
- Ivan Prochazka

\* Since the last Workshop in Poznan in 2008, three of our very dear colleagues have passed away. It is with great sadness that we remember Werner Gurtner, Wolfgang Seemueller and most recently Yang Fumin. They will be remembered for their contributions to international space geodesy activities, and particularly to the ILRS. They were very dear colleagues and good friends. We will miss them.