



**ILRS Governing Board Meeting**  
Chancellor Hotel, San Francisco, CA  
December 13, 2004  
1:00-4:00 p.m.

Attendees: G. Appleby  
W. Gurtner  
C. Noll  
M. Pearlman  
B. Schutz  
P. Shelus

W. Gurtner opened the meeting and welcomed everyone. The materials prepared by C. Noll and M. Pearlman (see accompanying PDF file of handout materials) were distributed and discussed.

The importance of recognition of the ILRS (and IAG services in general) by the science and mission communities was discussed. The ILRS needs to encourage missions that rely on SLR data to note our contributions in their publications and websites. Gurtner stated this was an issue for all the services and suggested the IAG push for recognition at their higher level.

**ACTION:** The CB will contact missions such as TOPEX, Envisat, GP-B, etc. to remind them that we need recognition in their publications.

**ACTION:** The CB will contact the IAG Outreach to suggest that the IAG make its participants aware of the issue.

Since the second DORIS receiver on TOPEX has failed, SLR is the only instrument supporting POD. The mission should make a statement to the ILRS community stressing the importance of SLR to its ongoing health and request continued strong tracking support.

**ACTION:** The CB will contact key TOPEX people to see if we can get an acknowledgement of this new role.

The outcome of the recent GB election was discussed. We have chairs for most Working Groups (AWG: Noomen, DFPWG: Seemueller, NEWG: Kirchner, MWG: TBD, SPWG: Appleby) but co-chairs remain to be identified (with the exception of the SPWG, Otsubo). Term limits on chairs of working groups was proposed. This proposal could cause problems if there is little turnover in the board. It was recommended that each chair be permitted to serve a two-year term with a limit of four consecutive terms. If approved by the board, this policy will begin this year. If a current chair has served two or more terms he/she can only serve two additional terms. It was agreed that although WG Deputies do not have to be members of the board, they could be invited to attend GB meetings in the future (as non-voting participants). Term limits for ILRS GB members were also discussed.

**ACTION:** The CB will draft a term limits provision for WG Chairs for GB review.

M. Pearlman reported that we have not received a draft agreement from the RSA (following their letter of interest) regarding cooperation on their novel satellites program.

**ACTION:** If we do not hear anything by mid-January, the CB will send a note to Drs. Shargorodsky and Vasiliev.

C. Noll stated that a message was sent to all ILRS associates requesting confirmation of contact information as well as membership in the various groups. Some stations cannot be contacted because of bad email addresses. W. Gurtner expressed concern that many ACs, AACs, and stations are not receiving the weekly data quality/quantity reports sent through SLReport. He asked that the CB contact the ACs, AACs, and stations requesting a single email address that will be added to the SLReport distribution list. The CB should insist that each of these groups should have a current routing address so that these reports can be made available to them. For the stations, this email list should be forwarded to P. Gibbs/NSGF to be used for his automated data quality emails.



**ACTION:** C. Noll will contact the ACs, AACs, and stations requesting an email address for SLReport.

C. Noll reported that GPS receivers installed near the Riyadh and Changchun SLR stations are now part of the IGS; the CDDIS began archiving Changchun GPS data last week. This is a requirement for qualification as an ILRS Operational Station.

**ACTION:** CB will check if the local ties have been measured for these two sites and are reflected in the site logs.

P. Shelus reported that MLRO has two shifts for laser ranging. NASA SLR funds one shift; the second shift is funded separately by NASA HQ for lunar tracking. M. Pearlman presented charts (see separate PDF file of slide material) created by D. Carter (NASA network update) and J. McGarry (SLR2000 status). R. Biancale stated (at the AWG meeting) that MOBLAS-8 in Tahiti is having trouble receiving parts from NASA and therefore system performance has suffered. The closing of operations at Maui and Arequipa, and the technical problems that have been experienced at Tahiti, have left the Pacific region very poorly covered. Efforts are afoot to reopen Arequipa and Maui.

C. Noll reported that the CB has looked into automated ways by which a station could delete bad data from the archives. It appears however that requests for removal of data are very rare (a few times a year at most) and that mechanisms envisioned could place the archives in jeopardy. Rather than automate this process, the CB recommended that archives be left untouched and that problems of this nature be reported by the station through SLRMail. C. Noll also reported a sub-daily data QC review is handled by P. Gibbs/NSGF. Diagnostic messages are automatically sent to the stations.

**ACTION:** W. Gurtner will look at the existing list of data problems (previously maintained by V. Husson) on the ILRS website and see if the webpage can be re-activated and updated on a regular basis.

On a more general basis, ILRS analysts need to get feedback to the stations about data quality. However, emails from the individual centers may overwhelm the stations. It was suggested that since ASI is the prime ILRS combination center, DGFI, in its role as the backup combination center, might be a good resource to review problems identified in the individual AC solutions and contact any station with problems. This idea needs to be further explored.

C. Noll showed the latest results from the prediction survey issued in July 2004. Unfortunately, some stations never did respond to the request for information. The ILRS is encouraging stations to use mission-provided predictions (e.g., Envisat, GLONASS/GPS, GFO, and Meteor-3M) or those that include GPS data in their generation process (e.g. CHAMP, GRACE, and GP-B). Some stations continue to use a particular provider's predictions out of habit, which may in fact hinder satellite acquisition. For example, CODE-based GPS and GLONASS predictions should be better than SLR-only predictions since GNSS data are used in the CODE IRV generation. GSFC has the information on GFO maneuvers and thus should be providing better predictions through the maneuver event.

**ACTION:** CB will issue a message to the stations requesting that they try the prediction data sets generated by mission or mission-specific providers.

M. Pearlman referred to the table showing low-elevation tracking performed thus far during 2004. There are very little data below 10 degrees elevation in 2004, too little to perform any refraction studies.

W. Gurtner provided an update on the ILRS restricted tracking policy (see slides in accompanying PDF file). Stations must qualify their safety procedures to the satisfaction of the particular mission. Procedures set by the mission include hard station pointing constraints, a routinely queried "Go-No Go" global key, and pass segment schedules issued to restrict tracking to non-vulnerable periods. ICESat (slides provided by P. Shelus and also included) has implemented an agreement between the mission and the station through email. Currently Graz, Zimmerwald, and MLRS are tracking ICESat. Several of the NASA stations will restart their support in early 2005. Predictions are provided by CSR.

M. Pearlman reported that the recommendations on dynamic priorities have not made much progress within the CB since there is no staffing support available from HTSI for this activity. It was suggested that a call within the ILRS community for volunteers to tackle this topic (among others) might have some success. The current satellite priority list was also discussed. The list contains 23 satellites. It was suggested that the list should be grouped into approximately six levels and assign each satellite to one of these levels. (This is essentially the same as one of the options suggested for dynamic priorities.) This categorization would allow stations some flexibility in setting their tracking schedules.

**ACTION:** The CB will examine the idea of issuing a call for a volunteer on the dynamic priorities.

M. Pearlman is awaiting a recommendation from the MWG concerning Galileo. The attendees felt that the ILRS should respond positively and tell the Galileo project that we will track the two experimental satellites, four orbital test satellites, and the full constellation to the best of our abilities. In all likelihood, only high-performance systems will be able to track Galileo.

**ACTION:** The MWG will issue its recommendation on Galileo.

M. Pearlman also has received a point of contact for GPS regarding retroreflectors.

**ACTION:** The CB will send a letter broaching the retroreflector issues on GPS, referencing published work on SLR tracking of GPS-35 and -36.

A GGOS Synergies Working Group among the IAG Geodetic Services has been established with Werner Gurtner as the Coordinator. The group will look into whether the IAG activities are sufficiently covered by the services and if there are new areas (e.g., gravity) that should be addressed. There may also be a requirement to work more closely with space geodetic areas. This WG will consist of the chairs of the IAG service governing/directing boards and the directors of their central bureaus/coordinating centers.

M. Pearlman is the Coordinator of the GGOS Network, Communications, and Infrastructure Working Group, which will examine network configurations to address GGOS requirements. Members will include representative from the geodetic services (ILRS, IGS, IVS, IDS and the IGFS), the IERS, and some representation from the analysis community. A meeting is scheduled to follow the GB meeting to begin reviewing WG plans. A GGOS meeting is planned for March 1-2 in Potsdam.

G. Appleby discussed the efforts on CoM characterizations within the Signal Processing WG. He has developed a general webpage and satellite-specific details that can be added to the existing satellite pages within the ILRS website (see examples included in the PDF of GB handout materials). Appleby recommends making these pages active now even though some values are missing, hoping that we can complete the information by asking readers to send in updates. The CoM web pages could be further enhanced by creating a separate table that categorizes the stations by detection technique. The categories could then be added to the satellite-specific webpage CoM information. Attitude models are needed to further process the CoM information and are at present typically incorporated into analysis software, but are not generally available.

**ACTION:** Appleby will provide webpages to Noll for the ILRS website and prepare an SLRMail message to announce the new pages and request inputs for missing areas.

M. Pearlman reported on contacts from JPL regarding a laser communications experiment from Palomar Observatory. They are analyzing multi-link refraction propagation for communications reliability studies. The request asked if the ILRS could help JPL gain permission to range to international satellites (e.g., Etalon). A route through the ILRS would be far easier than going through the more formal government-to-government path. This JPL activity may also help the ILRS better understand optical propagation issues and allow us to extend our capabilities into the communications arena. A formal request is being prepared.

An ILRS technical workshop is currently planned for Herstmonceux UK, October 3-7, 2005. G. Appleby is starting to plan the program and organize the program committee. Pearlman suggested that we align the workshop topics



with the ILRS WGs and thus have each WG chair submit ideas for the sessions. We will hold an ILRS General Assembly, GB, and WG meetings in conjunction with this workshop.

**ACTION:** G. Appleby will send an email to ILRS WG chairs asking for two questions pertaining to the two hottest topics in their area.

M. Pearlman confirmed that ILRS GB meetings will be held in conjunction with the EGU (April 24-29, 2005, Vienna, Austria) and the Herstmonceux workshop (October 3-7, 2005).

The meeting adjourned at 4:00 p.m.