

Report of AWG Meeting, Vienna, Austria, April 4, 2006.

Ad 1. Opening

The ILRS AWG members met on Tuesday April 4, 2006. The meeting began at 9.20 hrs. The agenda and list of attendance are given in Tables 1 and 2, respectively. Noomen welcomed the participants, and thanked Harald Schuh for arranging to use this meeting room. Announcements on a number of practical affairs.

Ad 2. Announcements

The chairman reported that Erricos Pavlis has become ILRS Representative on the GGOS Steering Committee, with Graham Appleby as a substitute.

Ad 3. Pilot project "positioning + earth orientation"

Noomen gave a brief introduction on the ILRS AWG activities on this aspect. Weekly products on station coordinates and EOPs (1-day resolution) are generated by 6 individual analysis centers (ASI, BKG, DGFI, GFZ, JCET and NSGF), based on SLR data taken on LAGEOS-1 and -2 and Etalon-1 and -2. The current procedure is effectively working since November 2003, and officially since June 2004. Official ILRS combination solutions are being produced by ASI (official primary) and DGFI (official backup) and are available on Wednesday of each week.

A similar approach has been followed to analyze the SLR data (on the same satellites) for the time interval January 1993 – December 2003, with the purpose to extend the data period covered by the solutions and to serve as input for the new ITRF2005 solution for station coordinates. Specific details for data treatment (center-of-mass modeling, bias treatment, core/non-core stations, troposphere model) were discussed during the previous AWG meeting in Eastbourne and applied here (as well as in the operational analysis).

At the request of IERS, the ILRS will also analyze the SLR observations for the years before 1993, starting from September 1983.

Ad 3.1. ITRF2005: status ILRS 1993-2003

Altamimi started his report by thanking the ILRS community for their contributions. He reported that the name of the solution-to-be has been changed from ITRF2004 into ITRF2005.

He presented his evaluation of the SLR solutions that have been generated so far, focused on geocenter and scale. A specific question is what to use for the definition of the origin (either the ILRS combination solution for 1993-2005 or the origin implicit in ITRF2000?) and for scale (either the mean of the current ILRS and IVS time-series, that of the ILRS solutions only, that of the IVS series only or that of ITRF2000?).

He evaluated the ILRS time-series for the period 1993.0-2006.0. This includes 90-100 stations in total, with 20+ stations in each weekly solution on average (but starting out with 8 in the very first week). The number 90-100 includes stations that are no longer in operation. After the year 2000, the number of stations shows a decreasing trend (from about 23 then to 20 now). Altamimi suggested that this reduction could have consequences for the geometry of the effective network and for the quality of the determinations of geocenter and scale. To assess these, Altamimi uses a core network, the choice for which is based on several considerations: data quality, and time span (at least 2/3 of the total time span

considered here). This leaves him with a network of just 10 stations, with Yarragadee as the single station in the southern hemisphere.

The solutions for geocenter and scale (in individual contributions as well as in combination solutions) show a good internal consistency. They do show a drift w.r.t. ITRF2000, however: Tx +0.5 mm/yr, Ty 0.6 mm/yr, Tz 1.1 mm/yr, SC -0.66 mm/yr. Remarkably, plots suggest that there is no drift in the Tz solutions for the interval 1993-2000, but that a drift is present in the years since then.

Altamimi also showed a direct comparison of solutions for scale, as determined by weekly ILRS solutions and “session” IVS solutions (independent comparison; no effort to relate them by using local ties or anything): these agree well, at least in trend. The amplitude of the yearly signal is different, though: the ILRS scale solutions have an amplitude of 1.4 mm, whereas the IVS solutions have an amplitude of 2.8 mm. He suggested that this may be related to a possible thermal expansion of the VLBI radio telescopes. The phase of the solutions is identical.

Triggered by a question from Ray, Ries commented that the problem of the ILRS trend in origin and scale since 2000 is most probably not introduced by the unusual behavior of J2: that does not affect the weekly pos+eop solutions.

Altamimi wants to extend the length of the time-series as a test by using solutions for earlier years that are currently available. In particular, ASI and DGFI have solutions prior to 1993 and will make that available (*action item Luceri, Müller*).

The question of what to use for the determination of the ITRF2005 origin and scale was left for discussion later in the meeting.

Luceri (ASI) reported on tests with different weights for the observations taken by core and non-core stations, performed over a period of 3 years (2003-2005). She evaluated the quality of the EOP results using 3 options for weighting: (1) a standard deviation of 1 m for all data; (2) a sigma of 1 m for the core stations and 4 m for the non-core stations, and (3) 1 m for core and 2 m for non-core (for the first half of 2005 only). She concluded that improvements could be obtained if equal weighting was applied (more balanced contributions as a function of longitude). Noomen remarked that we should not forget that the EOP solutions are a by-product, and that we should make sure not to “hurt” our origin/scale contributions. Luceri commented that the question originating this test was based on the (probably impractical) possibility to generate a specific solution for ITRF applications and a second one for EOP contributions.

Mareyen (BKG) reported about her analysis activities. BKG does deliver an operational solution each week, but has been unable (time constraints) to contribute to the 1993-2003 re-analysis. She emphasized that there are limitations to what we can deliver (and what users can expect): the products cannot be better than the data allow it to be. For instance, there is a clear “weekend effect” present in the series. In an ensuing discussion, Ray made the suggestion that the GPS solutions for EOP might be used (included and fixed, that is) to (further) improve the ILRS solutions for origin and scale. Opinions on this possibility apparently differ. At least one problem is the quality of site ties.

Müller (DGFI) reported on his recent computations. He showed the bias and station coordinate history of the Graz station, and suggested that this could be related to geophysical problems.

Otsubo showed results of tests that he performed for monthly solutions for the time-frame 2001-2004. He showed 3 solutions for scale, based on (1) a range bias estimation for all stations, (2) range bias kept fixed at 0 for the core stations and a center-of-mass value of 251 mm, ; and (3) range bias kept fixed at 0 for the core stations and a center-off-mass value of 245 mm (option 2 is the procedure adopted in Eastbourne). Results are that in the absence of exact (mm-level) values for CoM corrections and the probable presence of mm-level bias even in the best stations, it is not possible to separate solutions for GM, scale and RB at

better than about 0.5 ppb. The current targets (Lageos and Etalon) do not support 1 mm-level ranging accuracy, except for single-photon stations, both because of their size and because of operational practices in terms of variable return energies.

König (GFZ) showed his evaluation of origin and scale in the 1993-2005 solutions. He does not observe any trend in the origin components (unlike Altamimi's observations), so the suggestion is made that it is related to the strategy to derive these parameters (such as the choice for the mapping stations). He reported a worsening of some aspects of the solutions by about 10% after introduction of the Eastbourne procedures (solving for RB for a number of stations), but also observes similar improvements in other components. For instance, the RMS of scale increased from 1.04 ppb (without estimation of any bias) to 1.11 ppb (with estimation of biases, where required), Tz improves by a similar percentage. He is not in favor of estimating range biases at all. Ries made the comment that a larger value for such an RMS does not mean that the solution has worsened; it might have improved on other aspects.

Pavlis (JCET) reported on his evaluations and analyses. As for older data periods, he will include other satellites like Starlette and Ajisaj, and by doing so be able to stick to the weekly frequency of solutions. He showed some statistics for the 1993-2005 ILRS solutions: number of normal points, number of stations, variance, site positions (7090, 7839, 7832 (emphasizing the known incorrect velocity in ITRF2000), and 7840 (a Z-shift of ~2 mm in 2001)). Statistics on the individual and combination solutions show that the latter effectively outperform the individual ones on a range of aspects; exceptions are the ASI solutions (better in statistics on global stations) and JCET (better in statistics on global and on core stations). His evaluations showed small secular trends in the transformation parameters, and no indications for breaks.

Pavlis also studied the robustness of the station coordinates solutions, for GGOS considerations. Processing subsets of the observations (*e.g.* even vs. odd week; first half of data period vs. 2nd half; etcetera) shows that the Helmert transformation parameters w.r.t. ITRF2000 have sensitivities in the order of 10s of mm. His overall conclusion was that the current network of SLR stations is not robust enough, and made the recommendation to add new stations and/or relocate existing stations.

Appleby (NSGF) reported that he is working on a better LOD modeling. He is also getting started on an analysis for data from 1983 onwards.

Sciarretta (ASI) reported on the ILRSA combination solutions that have been generated for ITRF2005. They are based on the contributions of 5 analysis groups (BKG could only contribute to the operational product), and were available by the end of December 2005. The (v50) solutions rely on the updated combination procedures as reported in Eastbourne. The core stations show a 3D WRMS difference w.r.t. ITRF2000 of 10 mm; the full network has a 3D difference of about 40 mm (although this number is strongly affected by the earthquakes in Arequipa and Simosato, which clearly should be left out of such statistics).

She also showed trends in Tx, Ty, Tz and Sc, similar to the results shown by Altamimi. The combination product shows effects of the earthquakes. An important contribution comes from new, high-quality stations that have come online since 2000 (and which are not included in ITRF2000).

As for the re-analysis of the SLR data from 1983-1993, Sciarretta advises to take 2-4 weeks for the processing of each week (generation of individual and combination solutions), since more data problems (and a more careful treatment) are expected. She also showed (statistics on) the differences between EOP solutions of individual solutions (for various techniques) w.r.t. EOP C04. Two main conclusions: (1) the differences are small for the IGS solution and larger for the solutions from other techniques (which makes sense because GPS dominates C04.), and (2) there is an average difference, which is due to the

misalignment of the IERS C04 series with ITRF2000. This will disappear once the IERS properly align their series with the ITRF.

Kelm (DGFI) reported on the activities for the ILRSB product. He too implemented the suggestions made in Eastbourne. The operational product for the last week of 2005 and the first week of 2006 was delivered with some more delay than usual for a number of reasons at the ACs: computer breakdown, leap second, no a priori EOP data, etcetera.

He is to start the development of an automatic quality control system (*e.g.* generating plots to illustrate potential problems). ILRSA and ILRSB typically show similar solutions, although a comparison of Helmert transformation parameters showed differences of up to 2 (!) cm. Remarkably, Tz shows better statistics than Tx and Ty. He made 5 suggestions for possible causes for this unexpected result, and further investigations are needed.

Lunch break from 13.00 to 14.25.

Ad 3.2. ITRF2005: plans ILRS 1983-1993

The ILRS AWG intends (also at the request of IERS) to extend the current time-series of pos+eop solutions further back in time. This particular re-analysis will cover the period September 1983 (the beginning of the MERIT campaign) until December 1992, and connect with the (results of the) re-analysis 1993-2003.

Noomen gave a brief introduction on a number of aspects that play a role in the-analysis 1983-1993: what data (LAGEOS-1 is available throughout this period, LAGEOS-2 not, and the Etalons only since 1989). Do we need additional satellites (with which most of us do not have so much experience)? What would be the data source? How to handle data problems in general, and biases in particular? What data weights are to be used? What data intervals for the individual solutions? What data intervals for the EOP solutions? What stations to consider as core stations?

Some of these aspects were already discussed in Vienna2005, but since this re-analysis is not started officially, this is all open for discussion. Pavlis remarked that we should not put ourselves under pressure to deliver a product before a certain deadline, but that we should go for the best possible quality. This was agreed by all. Also, it is expected that this re-analysis will be much more labor-intensive than the computations done so far, since the data are inhomogeneous and probably much more affected by all sorts of data problems. It was agreed not to make any conclusions now, but instead ask and encourage the analysis centers to develop and test various analysis strategies according to their own ideas, evaluate the results, and report on this during the next AWG meeting.

Noomen offered to provide the LAGEOS-1 NP data that are available in Delft for that period; they have been screened and corrected for known data anomalies as best as possible during the 1980s and early 1990s. *Action item Noomen*: send screened LAGEOS-1 data for this time-frame to Müller (within 2 weeks after end of EGU). *Action item Müller*: evaluate this dataset and a similar dataset which is available at DGFI, and provide this to the data analysts as soon as practical. *Action item analysts*: evaluate the various options for analyzing the SLR data for this time-span. Pavlis agreed to coordinate the progress of this activity (*action item*).

Action item Noll: prepare CDDIS directory for exchange of observations and preliminary results.

Ad 3.3. Operational product

See remarks under agenda item 3.1. *Action item Noomen AWG* ????: re-assess the list of AWG-core stations.

To finalize the presentations and discussions on the time-series of pos+eop solutions, the questions posed earlier by Altamimi were brought up again: what approach should IERS follow to define the origin and scale of ITRF2005 (cf. notes under agenda item 3.1)?

After some debate, it was concluded that the ILRS AWG strongly recommends to use the current series of weekly solutions to provide these constraints. Argumentations are the following (in arbitrary order):

- (1) the SLR measurements have improved significantly w.r.t. the observations that were used to derive ITRF2000 (both from a quality and satellite quantity point of view);
- (2) Altamimi's criteria for selecting his mapping-to-ITRF2000 stations were probably too strict; the ILRS has very good and reliable additional stations in the southern hemisphere that should strengthen the origin and scale determinations (in particular Hartebeesthoek, Orroral Valley + Mt. Stromlo, and Arequipa), all have a good tracking history of at least 6 if not more than 10 years;
- (3) (the SLR solution to) ITRF2000 was based on data on average taken between 1986 and 1998, which means that if ITRF2000 were to be used for the origin/scale definition of ITRF2005, an extrapolation over many years would be made, with significant errors as a consequence;
- (4) orbital fits are now typically at the level of a single cm, whereas it was about 3 cm in the 1990s;
- (5) the time-series provide a new option to evaluate scientific quality but also technical aspects, including real, possible or apparent problems; it may very well be that similar problems were present in ITRF2000, but these were invisible because the tools/approach was different;
- (6) the computation models that are currently in use are better than those in use in the 1990s;
- (7) the network geometry is better than what Altamimi showed;
- (8) we are after "physical truth", and the current solutions should follow that much better than the extrapolations from ITRF2000; SLR still is a unique technique to provide particular components of the physical Earth;
- (9) the data treatment is better now than what it was for the submissions for ITRF2000: in particular in Eastbourne 2005, several new elements on bias treatment and satellite center-of-mass treatment were agreed upon that affect our analysis results in a positive way;
- (10) the total number of stations that was available for a comparable analysis in the 1990s was smaller than what is available now, so the situation is certainly not worse from a (numerical) tracking point of view;
- (11) the various ILRS solutions are very consistent, more so than the 5 SLR solutions that went into ITRF2000;
- (12) the trend in the global-scale solutions as observed by SLR and VLBI are consistent;
- (13) (actually brought up later in the week:) altimeter results show a radial North-South difference, which is suspected to be connected to terrestrial reference frame problems, indicating that ITRF2000 is not perfect;
- (14) ignoring the prime products for this component of the ILRS community (origin and scale) would be a very bad signal towards political and financial partners.

In addition to this, and in view of the seasonal variations in the scale solutions as observed by VLBI, Pavlis suggested that Altamimi might consider to change the relative weights of the scale contributions from SLR and VLBI from 50-50 to something that would give the SLR solutions greater weight.

Action item Noomen: convey these conclusions to Altamimi.

Ad. 3.4. New products

The ILRS has been approached repeatedly to make orbital solutions for specific satellites (the LAGEOS pair in particular, or to start with) publicly available. A discussion ensued who this-these institutions might have been, and for what purpose and quality requirement. It was agreed that the SP3 format would

be most convenient to publish such results. Since the participants were a bit reluctant to start an effort similar to the development of the pos+eop product (individual solutions, combinations) without knowing the customer(s) (wishes), it was decided to work with the orbital solutions that are presently available (in SP1) already, compare them to get an indication on their quality and identify/eliminate possible problems, and report about this during the next AWG meeting in Canberra. DGFI and JCET have such solutions readily available in SP1, and will do this effort (*action item Müller, Pavlis*). No need to start any action for other analysts (yet).

Noomen also expressed his wish to make the pos+eop results available in another, easily accessible format (in addition to the SINEX format). This will be a plain ascii format with basically solutions and uncertainties. The exact contents of this will be coordinated with the combination centers. *Action item Noomen*.

Ad. 3.5. Other issues

Nothing to be reported here.

Ad. 4. Benchmark project: status

Two groups are in the process of passing the benchmark: Geosciences Australia (GA) and GRGS. Pavlis reported that GA had submitted solutions in September 2005, and that he put in much effort to solve a number of problems with these submissions. However, there has been no reaction from GA for quite some time. *Action item Noomen*: get in contact with Govind and get the acceptance process going again.

Pavlis also reported on the solutions submitted by GRGS. It is suspected that they did not use the special dataset, models and parameterization that is to be used here: it may have been unclear to the French that the purpose is not to get a best-possible solution (including the optimization of model elements), but to repeat the standard (or expected) solutions “exactly”; the purpose is on verification and format adherence rather than optimization. *Action item Deleflie*.

Pavlis remarked that such assessments are quite time-consuming. It is emphasized that the analysis groups who like to be accepted for these product have the first responsibility to identify and remedy the problems. He proposes that from now on he will work in 2 yearly periods on such efforts, to avoid (time) conflicts with many other obligations: December+January and June+July. This was agreed upon by the attendants.

Ad. 5. Project "harmonization"

Mareyen (BKG) had a presentation on error assessment and analysis, triggering discussion with the audience. Recognizing that this is a very specialized topic, she offered to have a more dedicated getting together with the experts in Frankfurt, for 2 days. *Action item Mareyen*: identify the need and topics for such a meeting and arrange this.

Ad 6. Miscellaneous

Various brief agenda items.

Ad. 6.1. SLR tracking network

Carter (NASA) reported on developments in the network of SLR stations. In particular, TLRS-3 is to be moved to Arequipa (has been down since February 2004), and TLRS-4 is to be deployed in the direct neighborhood of the former HOLLAS system (to be operational in Summer 2006).

Mareyen expressed her concern for weekend days without any LAGEOS tracking at all, and the necessity to raise the status of the non-core stations to work around similar problems.

Noomen showed the results of an inventory of the particular days on which tracking data was acquired, for 13 different geodetic satellites. The statistics (normal point percentage vs. day) concern the period 2000.0-2006.0. In a perfect situation, all data would be equally distributed over the days (14% for each). In reality, it turns out that the week days have up to 16% of the tracking (per day), whereas the tracking during each weekend day may go down to as low as 12%. High-orbit satellites (Glonass, GPS) appear less susceptible to this. These tracking statistics are directly related to the number of shifts that are done in the network.

A discussion ensued on the necessity to give the stations more feedback on their data (quality, quantity) and report when the needs are not satisfied enough. *Action item Noomen, Luceri, Gurtner*: develop a simple report which gives an overview of (LAGEOS) data production and their use for the pos+eop product, for submission to stations and managers.

Deleflie reported on the status of the French laser ranging systems. The LLR system has been reconfigured, and is now named MEO. It is to resume operations in the end of 2006. The SLR system is phased out. The transportable system FTLRS is to restart in Summer 2006, and to be deployed in South Africa (Hartebeesthoek).

Ad. 6.2. Consistency QC reports

Ongoing activity, no news to report here.

Ad. 6.3. Analysis center categorization

Gurtner, Noomen and Shelus have studied the ILRS Terms of Reference on this aspect. Based on the description and requirements that are mentioned there, it is proposed that the groups that are directly involved in the generation of the operational pos+eop product, irrespective of whether this is through an individual solution or through a combination effort, be given the status of Analysis Center. This currently involves ASI, BKG, DGFI, GFZ, JCET and NSGF. Other institutes that would become official contributors to this product (or any other ILRS-approved products, to be discussed and accepted by the ILRS Governing Board), at a later stage, would be awarded a similar status. All other analysis groups, performing a variety of analyses, are ranked as Associate Analysis Center. This was agreed upon by all. *Action item Noomen*: convey this proposal to the ILRS GB. Official action from GB? Change of email exploders? Officially inform both new ACs (for receiving this status) and old ACs (for losing it)?

Ad. 6.4. Procedure for assessing quality of new SLR system

Müller confirmed his offer to coordinate this process. He asked to be given up to 4 weeks to come with such an assessment (a combination of dedicated analyses by multiple analysis groups). This activity should include an assessment of the quality of the station, but also feedback to the station on a best-possible epoch station position and velocity (to be included in the site log, by the station), The

“commissioning” of the new station in San Juan was done ad hoc by Appleby who tested the data and asked several ACs to look at the test set of observations; it is obvious that the system is not performing at the target specifications yet (time biases, cm-level range biases are still being reported). Noomen reported that the February LAGEOS-1 passes were corrupted by a 1-day error in the dating of these passes; for some reason the LAGEOS-2 passes did not have this error.

In principle, a similar procedure should be followed for an older system after having gone through a major upgrade.

Ad. 6.5. Station performance card

Dunn (Raytheon) reported on the station performance cards. The contents of the web pages have been modified slightly, and now provide more information on data quantity and quality. The Quarterly Report Card for the first months of 2006 is out.

This triggered the question what stations are to be considered as “AWG core” stations (the previous assessment dates back to about 1999). New, high-quality stations have come on line since then. This will be an explicit agenda item for the next AWG meeting.

Ad. 6.6. Analysis documentation

An action item coming out of the previous AWG meeting is that of documenting the analysis approach (models, parameterization and such), and provide that to the INDIGO project. This needs to be done by the contributors of individual solutions, and is not needed for the combination centers. So far, two groups have delivered these descriptions. *Action item ACs.*

Another documentation issue is the “reachability” of the pos+eop products. To improve on this, two things are being modified. First, Noll has written an introductory page on these products, which will be included in the CDDIS web pages with clear references to where to find these products. This is pending the next thing: to copy the most recent pos+eop results to a separate directory, without version numbers, and encourage other users to use this. The proposed name for this would be `/slr/products/official_pos+eop/year/ilrsa*****` (the directory level “year” was added later at the suggestion of Gurtner), and the directory would include combination solutions `ilrsa` and `ilrsb` only. This is an action item that was identified in the previous AWG meeting already. (*action item Noomen, Noll, Seemüller*)

Ad. 6.7. Special issue Journal of Geodesy

The IDS and IVS are in the process of publishing their science-analysis activities in two special issues of the Journal of Geodesy. Noomen proposed to do a similar “outreach” thing for the ILRS analysis efforts, very much in line with what has been done after the Laser Ranging Workshop in Lanham, 2002. The emphasis must be on science and analysis. Noomen attended the editorial board meeting of the Journal of Geodynamics earlier this week, and learned that the impact factor of this journal is twice as large as that of the Journal of Geodesy. The idea for a special issue was welcomed by the attendants, and a discussion ensued on where to publish this. The impact factor is one argument, but consistency of (publication of) all services is another. *Action item Pearlman:* convey this to the GGOS Steering Committee and report back what journal is to be preferred. *Action item Noomen:* organize an “guest editor board” to come up with subjects, (first) authors and reviewers, coordinate the development of this special issue, and approach editor of selected journal.

Ad. 6.8. IERS tidal loading tool

Noomen brought this tool to the attendance of the audience, and encouraged the audience to evaluate this new coding possibility (in a test configuration; not to interfere yet with the operational product).

Ad. 6.9. Simosato earthquake modeling

The 2004 earthquake near this station triggered the question whether the ILRS is treating such events properly. For instance, is the (expected) discontinuity in the time-series of coordinates solutions taken care of in the SINEX solutions? How should this be done? A discussion was started on this, with no clear outcome. *Action item Noomen*: check the procedure for this with Altamimi, and report back to the analysts.

As a side-issue, it was remarked that Simosato is not an IGS station (yet). This needs to be changed and the station management encouraged to pursue this aim.

Ad. 7. Next meeting

The next AWG meeting will be held in conjunction with the next International Workshop on Laser Ranging (Canberra, Australia, October 16-20). Considering the full program for the main venue and the fact that a conference on geodetic reference frames is planned in Munich in the week before, it is decided that the next AWG workshop will take place on Saturday October 21.

Ad. 8. Action items

See Table 3. Standing action items from the meeting in Eastbourne (October 2006) are not addressed.

Ad 9. Closure

The meeting adjourned at 18.15 hrs. The chairman thanked the participants for their input in presentations and discussions.

May 12, 2006

R. Noomen, G. Appleby, P.J. Shelus

Table 1: Agenda

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6. miscellaneous
 - 6.1. SLR tracking network
 - 6.2. consistency QC reports
 - 6.3. analysis center categorization
 - 6.4. procedure for assessing quality of new SLR system
 - 6.5. station performance card
 - 6.6. analysis documentation
 - 6.7. special issue Journal of Geodesy
 - 6.8. IERS tidal loading tool
 - 6.9. Simosato earthquake modeling
7. next meeting
8. action items
9. closure

Table 2: Attendance

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Table 3: action items

ACs	complete INDIGO description analysis and submit to CDDIS and EDC
ACs, CCs	general: submit solutions to both CDDIS and EDC
ACs	experiment with satellites, models and procedures for pos+eop solutions 1983-1993 (deadline: October 21)
Appleby	extend table with CoM values AAA DONE? AAA
AWG AAAAA	re-assess AWG core stations status
AWG	make overview of station activities 1993-2005, based on eccentricity file and “pos+eop” info
AWG	develop yearly linear SLR-only position model for QC purposes
Deleflie	submit blind test benchmark project (old action item Exertier)
Glotov	use ITRF2000 in QC analyses AAA DONE?? AA
Govind	submit blind test benchmark project
Luceri, Müller	provide current pos+eop solutions 1983-1993 to Altamimi
Mareyen	develop proposal for testing and evaluating scale and weighting aspects of pos+eop solutions
Mareyen	develop 2-day analysts getting-together in Frankfurt
Müller	use ITRF2000 in QC analyses AAA DONE ?? AAA
Müller	evaluate DGFI and DEOS data LAGEOS-1 1983-1993, and make available to ACs
Müller, Pavlis	exchange and compare orbits in SP3 format
Noll	prepare CDDIS directory for exchange data and results 1983-1993
Noll	check and change email exploders for AC-AACs, after new categorization
Noomen, Pearlman, Gurtner	homogenization of QC reports
Noomen	update description of pos+eop products and procedures
Noomen, Noll, Seemüller	“redesign” pos+eop subdirectories, plus change in naming and handling
Noomen	get letter expressing general support for ILRS activities from IERS chairman
Noomen	send screened LAGEOS-1 data to Müller
Noomen	convey recommendations on ITRF2005 origin and scale to Altamimi
Noomen	have ASI and DGFI develop plain format for pos+eop results
Noomen	get benchmark process GA in action again
Noomen, Luceri, Gurtner	develop report with pos+eop use for stations and managers
Noomen	convey proposal for AC/AAC categorization to ILRS GB
Noomen	organize guest editorial board for JoG special issue
Noomen	check IERS procedure for station documentation after earthquakes and such
Pavlis	update description of pos+eop products and procedures
Pavlis	make pos+eop statistics from ILRSA available through CDDIS link
Pavlis	evaluate blind test benchmark project results GA and GRGS
Pavlis AAAAA	monitor experimenting of ACs of 1983-1993 data
Pearlman	ask GGOS for preference special issue: JoG or JoG
Pearlman	remind Simosato to become IGS station