



INTERNATIONAL EARTH ROTATION SERVICE (IERS)
SERVICE INTERNATIONAL DE LA ROTATION TERRESTRE
WWW: <http://hpiers.obspm.fr>

Report on IERS Directing Board Meeting No 22

4 September 1997, 14:15 - 17:15

Rio de Janeiro (Brazil)

Held in conjunction with the IAG Scientific Assembly

Attendance: C. Reigber (Chairman), C. Boucher, M. Feissel, D. Gambis, C. Ma, D. McCarthy, B. Melbourne, B. Schutz, P. Willis.

Agenda

In order to better follow the parallel evolution of the current IERS projects, the agenda was organized over two successive meetings, this one and another one to be held in December 1997, in conjunction with the AGU Fall meeting.

ACTIONS SINCE LAST MEETING (APRIL 1997)

The analysis of the poll of IERS users was distributed electronically and deposited on the IERS Web site by the Central Bureau. It was also included in the 1996 IERS Annual Report. The name list of the responders to the poll was provided to the Extended Directing Board members.

The 1996 IERS Annual Report was distributed in early August. The new organisation of its contents gives more visibility to the activity reports of the various IERS bodies: Directing Board, Coordinating Centres, Bureaus.

The IAU 23rd General Assembly has adopted the International Celestial Reference System (ICRS) that was defined by the IERS in 1988 and its realisation, the International Celestial Reference Frame (ICRF) that was derived in a cooperation between the IERS and the IAU Working Group on Reference Frames. The IAU Resolutions (given in Annex) also give to the IERS the charge of maintaining the ICRF with the help of an IAU advisory group. The authors of ICRF prepared IERS Technical Note No 23, "Definition and Realization of the International Celestial Reference System by VLBI Astrometry of Extragalactic Objects" (288 pages) describing the ICRF that was mailed before the IAU General Assembly.

As requested at meeting No 21, the Central Bureau published the value of the constants to use for referring the IERS (1996) precession-nutation model to the ICRS, in the Gazette No 18 and in the 1996 Annual Report.

D. Salstein submitted a proposal that IERS issue a warning about the current building up of an El Niño event, asking observers of the geophysical fluids and of the various techniques for Earth rotation to analyze the details of their products keeping in mind the possible impacts of this event. The Directing Board decides to publish this warning in the IERS Gazette.

ITRF AND RELATED MATTERS

ITRF96

Following the request of the Directing Board (December 1996 meeting), the ITRS Section of the Central Bureau prepared an update of ITRF94 based on individual terrestrial frames collected in 1996 and 1997. The combination makes use of the variance matrices relative to station positions and velocities. The weighting is performed by a rigorous statistical algorithm that takes advantage of the availability of multiple solutions for each technique. The resulting solution is called ITRF96. It is derived from 17 selected individual solutions from VLBI (4), SLR (2), GPS (8) and DORIS (3), all available under the SINEX format. Local eccentricities in the colocation sites are also treated with the consideration of their variance-covariance. All points within a given site are constrained to have the same ITRF velocity. The datum of ITRF96 is set identical in value at epoch 1993.0 and in rate to that of ITRF94. ITRF96 includes 540 stations in 290 sites; about 200 stations get positions at epoch with uncertainties smaller than 1 cm.

The Directing Board thanks the ITRS Section for this achievement. It represents major progress in the IERS results. The Directing Board recommends that ITRF96 be made publicly available as soon as possible.

It recommends that the coordinators participate actively in the discussion of this solution with the Analysis Centres and the ITRS Section. All clarifications on problem stations and other details of the analyses would benefit the next issue of ITRF.

The Working Group on the ITRF Datum (Chair: J. Ray) has scheduled a meeting in December 1997 to discuss both the Geocenter campaign and datum issues.

Local surveys

The ITRS Section and CDDIS jointly maintain a public data base on space geodesy observing sites. The "Site Survey Homepage" contains basic reference values for all sites, such as the description of instruments and markers, local eccentricities with covariance matrix in SINEX format, and identification of the agency responsible for the global treatment of existing surveys on the site.

Two reports on the local ties problems encountered in the analysis of ITRF94 and ITRF96 were distributed by the ITRF Electronic Mail (# 9, 23 May 1997; # 14, 25 August 1997). Missing information for ITRF96 concerns 33 stations in 18 sites; 24 stations in 15 sites have low precision information; 16 new local ties in 15 sites were collected for ITRF96; 2 local ties in two sites were updated. The new Tahiti colocation site was surveyed.

The Directing Board considers that this longstanding problem should be treated in a more active way. Actions started together with CSTG and IGS (see hereafter) may lead to a more satisfactory situation.

The International Space Geodesy Network (ISGN)

At its April 1997 meeting, the IAG Executive Committee "decided to make the establishment and long-term maintenance of a global geodetic network including space geodetic and gravimetric station. This should be a joint task by CSTG and IERS". To start this joint activity, a meeting with representatives of IERS, CSTG and IGS was called for 5 September 1997. This meeting resulted in the formation of a small task force to establish the criteria to be met by a site to be qualified. See details in the minutes of this meeting (Annex 2).

LASER RANGING PARTICIPATION IN IERS

The CSTG is developing a project for an International Laser Ranging Service (ILRS) with terms of reference partially inspired from those of the IGS. The SLR Coordinator, B. Schutz, is keeping the Directing Board informed about the development of the project. The Directing Board considers that the mutual representation of IERS and the future ILRS must be organized in a reciprocal way, as is done with IGS.

IERs CONVENTIONS MANAGEMENT

The mission of the IERS Conventions Editorial Board is specified as follows:

- Decide on the contents of the IERS Conventions (list of topics to be covered).
- Decide on the selection of contributors.
- Be responsible for the internal consistency of the document and its external consistency (other international conventions).

The "political" choices concerning the relationship with the Unions recommendations will be decided upon by the Directing Board.

The Editorial Board should be formed in time for adoption at the December meeting, under the responsibility of D. McCarthy.

COMBINATION SOLUTIONS WITHIN ONE TECHNIQUE

The Directing Board expects that the effort already started to obtain unified solutions (TRF, EOP, plus CRF in the case of VLBI) from each of the IERS technique be amplified. This unification can be obtained either by combination of individual centres solutions or by a unique grand solution based on the convergence of analysts views and procedures. In any case, the Directing Board considers it indispensable that individual solutions continue to be derived by the Analysis Centres and provided to the Central Bureau. This subject is one of the two topics selected for discussion at the 1998 IERS Workshop.

PROPOSALS FOR MONITORING GLOBAL GEOPHYSICAL FLUIDS

Proposals for the advertised functions were received from seven institutes or groups of institutes. They include some overlaps as well as complementarities. The proposals are excellent, but the difficulty is now to make the appropriate selection. External experts will be solicited and contacts will be made with the proposers. Particular attention will be paid to the relevance of the proposals to IERS missions and the service aspects of the proposed activities. The final decision will be made at the December meeting.

ONGOING AND PLANNED ACTIONS

The Campaign for the analysis of the geocenter motion is quite active. First results were already made available by the participants. A session on this topic is organized by J. Ray and C. Boucher at the next Fall AGU meeting. The final report will be available in 1998.

After the conclusions of the Pilot Campaign for the geocenter motion analysis that are expected for early 1988, the relative merits of predicting ITRF via positions and rates or position time series should be investigated.

The analysis campaign organized by C. Ma in order to clarify the tie of the EOP to the reference frames will be based on the use of ITRF96, to be soon released. The call for proposals should be associated with the discussions of ITRF96 between the ITRS Section, the Coordinating Centres and the Analysis Centres.

NEXT MEETING

- In conjunction with the Fall AGU meeting in San Francisco, 10 December 1997

Annex 1.

Recommendations voted by the 1997 IAU General Assembly

Annex 2.

Minutes of the CSTG-IERS-IGS meeting, 5 September 1997



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Paris, 18 October 1997

To the Extended
IERS Directing Board

Dear Colleagues,

You will find enclosed the draft reports on the IERS/DB meetings of April 1997 in Vienna and September 1997 in Rio. As you may remember, the April meeting was not conclusive on some topics. On several of them, the work done before and at the September meeting allowed some progress. I thought that reproducing in the report the somewhat erratic pace of the April meeting was not very useful, and I decided to report only on topics where progress has actually been made. Meanwhile, as you can check for yourself, the pending actions are kept in the lists of actions that are carried from meeting to meeting.

There is a limit to the speed at which the DB can incorporate in IERS the many changes that have to take place. We have to recognize the need of some time to accomplish that.

If you feel that I was too strong in the "editing" of the April meeting, please mention to me the corresponding aspects.

Best regards.

Martine Feissel