3.3 Analysis Coordinator

Introduction

Although the new structure of the IERS was already implemented on January 1, 2001, the work of the current IERS Analysis Coordinator officially started only at the IERS Directing Board Meeting in September 2001 in Brussels. This report will cover the activities from September to December of 2001.

Goals and Time Schedule of the IERS Analysis Coordination

The major goals of the IERS Analysis Coordination, as presented in Brussels in September 2001, may be grouped into five major tasks as follows (see also Figure 1 below):

(1) Coordination of CRC activities: an ongoing process.

(2) Status / list of present IERS products and their methods of generation

a) Compile a complete list of present IERS products containing the following information:
- When generated? How often? With what delay?
- Availability, where?
- Accuracy, consistency
- Detailed description of algorithms used (combination methods, weighting, standards, …), references to publications, web pages
- Details on how the products should be used?

b) Status of global station network
- Compile the status of the global network together with the CSTG Subcommission on the ISGN and the ITRF Product and Analysis Centres
- Assess status of local ties, site logs, etc.
- How global is the site distribution?

c) Use of IERS standards
- Compile a complete list of the standards used by the various techniques and by individual ACs

d) Documentation
- Check for the availability of IERS product descriptions
- Are product generation methods documented?
- Are format descriptions available?
- Are product changes tracked?

(3) Plan for the optimisation of the consistency and accuracy of the products. A plan has to be development with the different IERS components on how to achieve this goal.

a) Global station network
- Strive for a global distribution of collocated sites
- Encourage GPS receiver implementation at every site occupied by SLR or VLBI
- Improve local ties

b) Optimisation of the products of individual techniques
- Responsibility of the Technique Analysis Coordinators
- Combination of techniques –> systematic errors, quality information –> feedback to technique centres –> improvements

c) Standards concerning modelling, processing and parameterisation
- Make sure that IERS standards are used
- Establish three types of standards: modelling, processing and parameterisation standards
- Standards have to be continuously improved (IERS Convention Centre, IERS Analysis Coordinator, Technique Centre Analysis Coordinators). With what methods?

d) Combination strategies and methods
- Final goal: rigorous combination of ITRF/ EOP/ ICRF, including all common parameters
- A task of the CRCs (software development, …)

(4) Implementation of new combination strategies. A procedure in two steps is proposed:

(A) “Weekly” solutions

1. Generation of “weekly” solutions in SINEX by Analysis Centres of individual tech-niques with station coordinates + EOP (+ ICRF)
2. Combination of “weekly” solutions of individual techniques by the Technique Services
3. CRC test and combine “weekly” technique solutions
4. Combined weekly solutions as the basis for final routine EOP products

(B) “Multiyear” solutions

1. Combination of “weekly” solutions into “multiyear” solutions including ITRF/ EOP/ ICRF.
2. Resulting ITRF + ICRF are used to produce fully consistent EOP series.

(5) Routine quality control of all IERS products

All the major information on the goals, the plans, the present status of the IERS analysis coordination work is available and maintained on the web pages of the IERS Analysis Coordinator. They give a good overview of the corresponding activities. Please have a look at the web pages to get an up-to-date impression of the present status of work.

In order to make progress towards the goals mentioned above the following primary activities were initiated in 2001:

- Compilation of a complete list of IERS products. The present status of the list has been implemented in the IERS web pages (see <http://www.iers.org/iers/products/>).
- IERS Campaign to align EOPs to ITRF2000/ICRF
- IERS SINEX format unification
- IERS SINEX Combination Campaign

The last three items are the topic of the next section, where the web pages are presented.

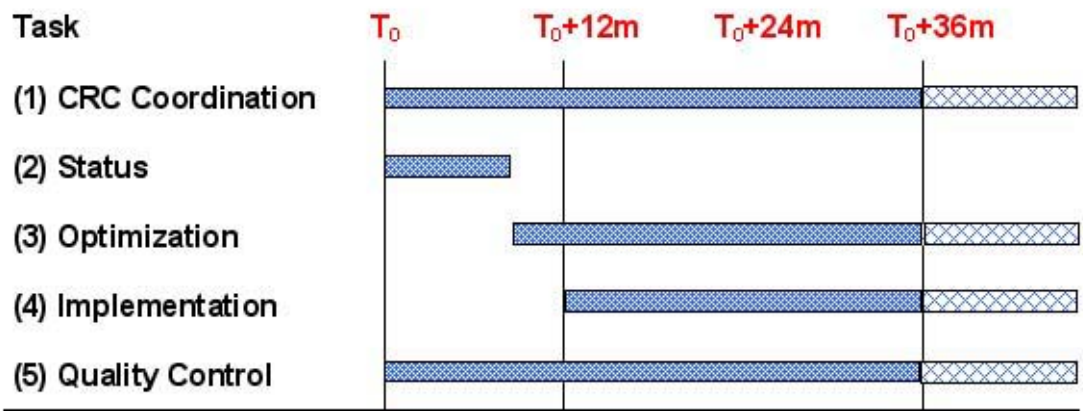
Web Pages

According to the proposed procedure, presented at the IERS Directing Board Meeting No. 34 in September 2001 in Brussels, a new web site was planned and installed in November 2001. This site should provide a communication and data exchange platform to the Combination Research Community. It should also stimulate and support their activities. The web site

<http://alpha.fesg.tu-muenchen.de/iers/>

presents the current activities and research intentions of the Combination Research Centres (CRCs), provides a communication platform with mail forum and e-mail exploder and builds the main

Figure 1. Time schedule of the IERS Analysis Coordination activities. T_0 = September 2001.



coordination of the IERS SINEX Campaign and the IERS Analysis Campaign to align EOPs to ITRF2000/ICRF. A more detailed description of the objectives and the planned activities can be downloaded from
<http://alpha.fesg.tu-muenchen.de/iers/annexIII.html>.

Communication

The IERS Central Bureau has installed a platform for a CRC discussion group in order to support e-mail discussions and the scientific transfer between the CRCs and interested persons. The e-mail support is subdivided into the e-mail exploder with restricted access and an e-mail forum, which is public to all interested persons. Anyone, who is interested in CRC concerning activities and wants to participate in the discussions can address himself to the IERS Central Bureau (A. Lothhammer, <lothhammer@iers.org>).

CRC Activities

The link
<http://alpha.fesg.tu-muenchen.de/iers/crc/crc%20activities.html>
is leading to CRC project list. This list should present an overview as up-to-date as possible of the current CRC activities. In addition to the institutions, names and contacts it includes their objectives, combination and research strategies, their future plans and links to further publications.

EOP Alignment Campaign

In September 2001 the IERS Analysis Coordinator presented the 'IERS Analysis Coordination Campaign to align EOPs to ITRF2000/ICRF' as originally proposed by Jim Ray. The intention of the IERS Alignment Campaign is to create EOP series with highest possible consistency with ICRF and ITRF2000. The aim of this project is to achieve an overall accuracy of 0.1 mas. This will lead to an intermediate solution until a rigorous combination of the EOP together with ITRF / ICRF is possible. Therefore it is necessary to analyse and understand the origin of systematic errors belonging to the reference frames. The IERS Alignment Campaign was started at the end of September 2001 with an initial call for participation. The campaign is subdivided into two parts. In a first step the Technical Centres were asked to produce EOP series with a reference frame fixed to the ITRF2000 / ICRF at the level of uncertainty. In addition, they were asked to produce solutions with different constraints on ITRF2000 (ICRF). The second step consists of the analysis of the submitted EOP series by comparison with the official annual solutions 2000 and by studying the consistency between the various series. The final results should be recommendations for future realizations of reference frames. The ongoing project can be accessed under
<http://alpha.fesg.tu-muenchen.de/iers/eop/campaign.html>.
The sublinks 'Call for Participation', 'Proposals', Submission of

EOP series', 'List of available EOP series' and 'Results' show the whole history and the processing of the Alignment Campaign.

SINEX Format

The web pages and the communication platform was used to develop a new SINEX format. The objective was to create a single, shareable and uniform SINEX format. This is a very basic requirement for the combination of SINEX files from all different Technique Centres. The most common SINEX format descriptions were analysed and a new uniform consistent version was proposed. The discussion about the new format (Version 2.00) was not finished until the end of the year 2001. Now the final version of the SINEX 2.00 format is available under

<http://alpha.fesg.tu-muenchen.de/iers/sinex/sinex_v2.pdf>

(see as well IERS Message No. 26).

IERS SINEX Combination Campaign

It is the intention of this campaign to combine „weekly" solutions from SINEX files of different techniques with station coordinates and EOPs (and ICRF) and to assess systematic biases between the individual space geodetic techniques. The web pages were prepared and the Campaign was initiated at the beginning of the year 2002. Now the goals, the procedure and the participants can be found under

<http://alpha.fesg.tu-muenchen.de/iers/sinex/sinex_campaign.html>.

SINEX Data Pool

Parallel to the SINEX Combination Campaign a SINEX data pool is under construction. Various SINEX data are collected and archived to provide the CRC community with an easy to use data base for their research. An up-to-date list and links to a selected subset of SINEX files, suitable for combination research and software testing, is available in the SINEX file archive,

<http://alpha.fesg.tu-muenchen.de/iers/sinex/datapool.html>.

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