

3.2 Central Bureau

General activities

The IERS Central Bureau (CB), hosted and funded by Bundesamt für Kartographie und Geodäsie (BKG), organized and documented the IERS Directing Board (DB) Meetings No. 40, April 28, 2005, at Technical University Vienna, Austria, and No. 41, December 5, 2005, in San Francisco, USA. Between the meetings the CB coordinated the work of the DB.

The CB prepared an IERS Workshop on Combination, held October 10–11, 2005, at GeoForschungsZentrum Potsdam, Germany. 58 specialists took part in this workshop. The presentations were published at the IERS web site. For a summary see Section 4.

The CB presented the activities of the IERS with oral and poster presentations at the IAG Assembly in August 2005 at Cairns, Australia, at the Meeting of the Forschungsgruppe Satellitengeodäsie (FGS) in September 2005 at Kötzing, Germany, and at the IERS Workshop on Combination. In May 2005 B. Richter took part in a UNESCO Meeting in Paris about the future of the Federation of Astronomical and Geophysical Data Analysis Services (FAGS) and gave a report on the IERS. The CB prepared an IERS report for the period 2002–2005 to IAU Commission 19.

IERS components maintain individually about 20 separate web sites. The central IERS site <www.iers.org>, established by the CB, gives access to all other sites, offers information on the structure of the IERS, its products and publications and provides contact addresses as well as general facts on Earth rotation studies. It contains also electronic versions of IERS publications, a list of meetings related to the work of the IERS, and an extended link list for IERS, Earth rotation in general and related fields. Throughout 2005 the web site was regularly enlarged and updated. By the end of 2005, work on a new layout and new organization of the web site was finished (see below).

The “Proceedings of the IERS Workshop on site co-location” (edited by the Central Bureau) were published as IERS Technical Note No. 33 in online and printed forms. The IERS Annual Report 2003 appeared in printed form. The CB published also the IERS Annual Report 2004 in online form. It appeared in December 2005 in the form of PDF files for download from the web site. Along with the reports of the IERS components, it contains information on the IERS compiled by the CB.

During the year 2005, 13 IERS Messages (Nos. 67 – 79) were edited and distributed. They include news from the IERS and from related services as well as announcements of conferences.

Address and subscription information has regularly been updated in the IERS user database. There were about 2500 users in 2005 with valid addresses who subscribed to IERS publications for e-

mail and regular mail distribution.

Several questions from IERS users concerning IERS publications and products as well as Earth rotation and reference frames in general were answered or forwarded to other specialists. Also requests from journalists concerning the future of the UTC timescale were answered.

IERS Data and Information System

The new IERS Data and Information System is running in operational mode since the end of 2005. The content of all web pages of the old information system has been transferred to the new system and all links to old web pages are being forwarded automatically to the appropriate new web pages. The new system presents information related to the IERS and the topics of Earth rotation and reference systems. As the central access point to all products of the various IERS Product Centres it provides tools for search within the products (data and publications), to work with the products and to download the products.

The concept of the dynamic and database-driven IERS Data and Information System is based on the application of the eXtensible Markup Language (XML) and the generation and administration of ISO standardised metadata. XML can be regarded as the future standard format for data and information exchange over the web. Using XML the heterogeneous products of the IERS in their various formats can be consistently described based on one common markup language. Moreover, despite their originally heterogeneous formats all products can now be merged easily for further investigations. From these data files extended metadata are extracted and stored in the database for search and for the description of the available datasets. Additionally, the metadata can be explored by international meta information systems to enlarge the user community of IERS products. Aside the original standard file output, the data and information can be presented in multiform, e.g., html, pdf, ascii, or in any format that might be requested from the user community.

The whole process to incorporate new product versions into the system – i.e. downloading data files from the responsible IERS Product Centre, transforming them into XML, extracting metadata, and storing all information into a database – is being done automatically. The web pages to present the available product versions and the associated information like the metadata are being created automatically from the information stored in the database. The system is completed by an Administration Tool providing all necessary instruments to maintain the data and information.

The most important characteristics and functionalities of the IERS Data and Information System are:

- Dynamic generation of web pages, i.e. the content is being read from various MySQL databases like the product, web page, and address databases; thus the consistency, actuality and non-redundancy of the presented information can be guaranteed.
- The numerous databases (address, web site, product, meeting, workshop, metadata databases, etc.) are maintained by an Administration Tool.
- Availability of all IERS products from a central server in consistent formats, realised by one common technique, i.e. the eXtensible Markup Language (XML).
- Full text search as well as metadata search.
- On-line form to order products and distribution lists for the transmission of new product versions of ordered products.
- Automatic import of new product versions, transformation to XML and extraction of metadata.
- Management of e-mail exploder lists.
- Automatic forwarding of calls to URLs of old web pages to the respective URLs within the new web site.

Moreover, the IERS Data and Information System serves as reference data centre for the ITRF 2005 input data and guarantees the sustainable availability of the data.

A concept for a Plot Tool has been developed, in order to allow the user to visualise data from the various available products on-line. If reasonable, datasets can be presented in one plot and compared to each other. The data for the plots are being extracted from the product versions by using the XML format descriptions of the products. Likewise, the XML format description is being used by the administrator to define in beforehand which data from which products are available for a plot and which plot configurations are meaningful. The visualisation module provides all defined plot configurations to the user, who can choose a specific presentation from the available pre-defined configurations. The Plot Tool is expected to be available in mid 2006.

Publications

- Dick, W. R.; Richter, B.; Schwegmann, W.: The ICRS and the IERS information system. In: O. Engvold (ed.), *Highlights of Astronomy*, Vol. 13, San Francisco, CA: ASP, 2005, p. 609
- Richter, B.; Schwegmann, W.; Dick, W. R. (eds.): *Proceedings of the IERS Workshop on site co-location*. Matera, Italy, 23 – 24 October 2003. (IERS Technical Note; No. 33) Frankfurt am Main: Verlag des BKG, 2005. 148 p.
- Richter, B.; Schwegmann, W.; Dick, W. R.: Development of an Information and Database System for the IERS: Status and outlook. *Journal of Geodynamics* 40 (2005) 487–493.

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