



IERS Data and Information System



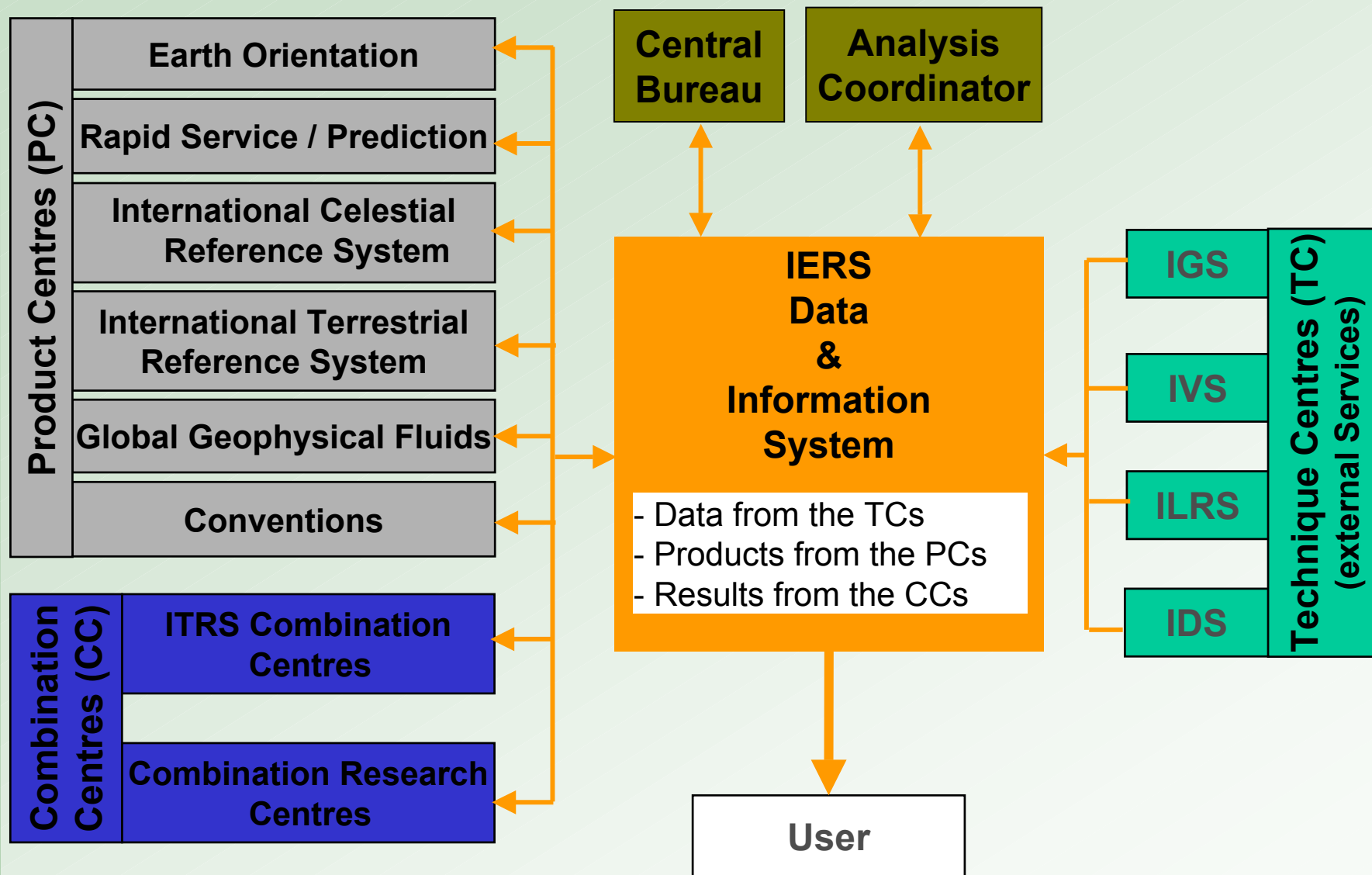
Wolfgang Schwegmann and Bernd Richter

IERS Central Bureau

Bundesamt für Kartographie und Geodäsie



Motivation



General Concept

1. Development of a *Data Management System*:

- Archive all products of the IERS on one central server.
- Extract and maintain *meta data* of the products in a database.
- Export the meta data into so-called *Meta Information Systems (MIS)* to acquire new users.
- Provide access to the data via FTP and a Web interface.

2. Provide all data sets in a *standardised format* to facilitate the exchange and combination of the data:

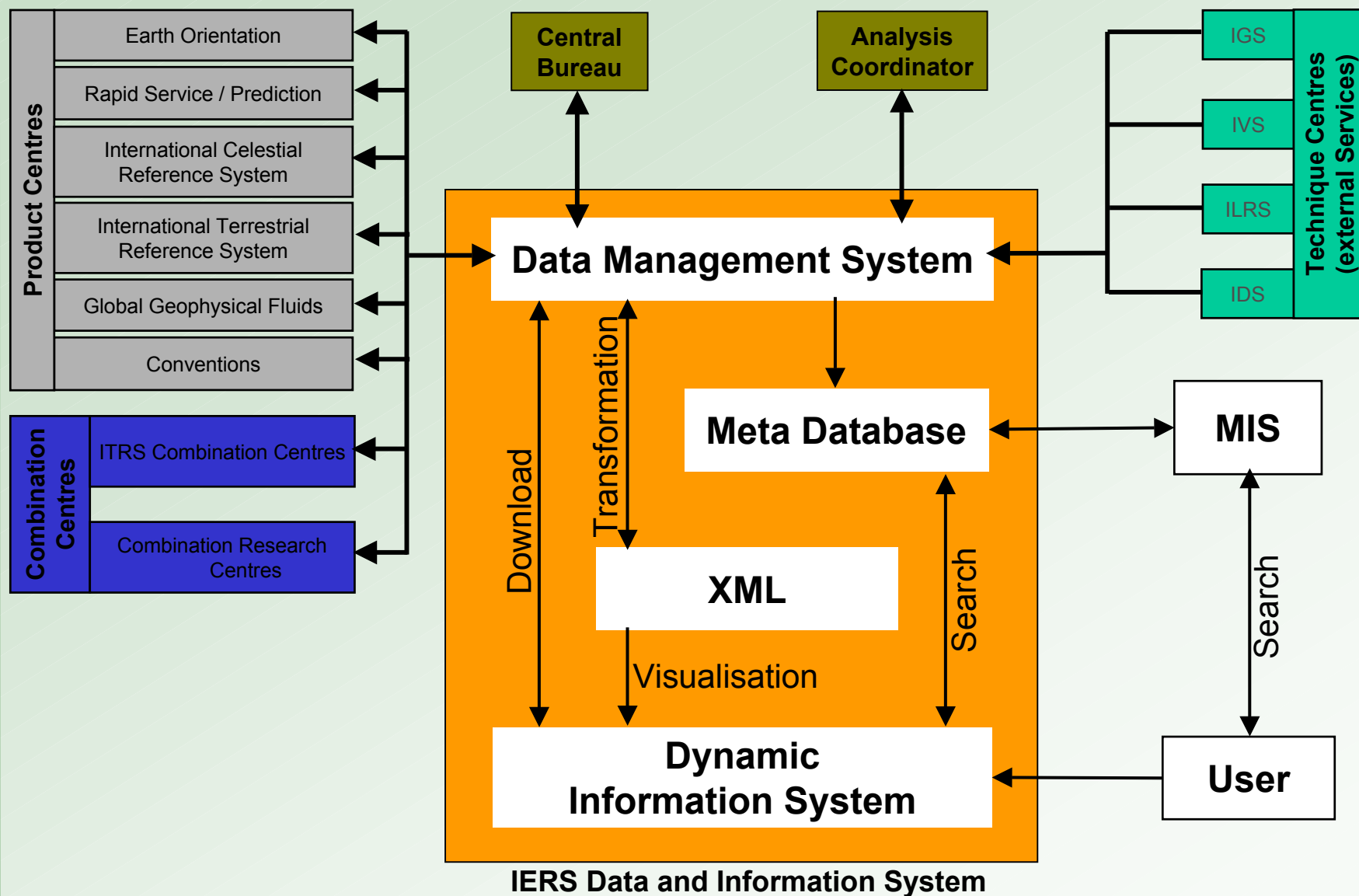
- Usage of the eXtensible Markup Language (XML).
- XML allows the transformation of the data into any format (ascii, html, plots, etc.)

3. Realisation of a dynamic Information System:

- Databases to store dynamic content (meta data, addresses, ...).
- Scripts to transform the XML data into appropriate formats for download, on-line visualisation, combination, etc.
- Web interface including search capabilities to discover and access data of interest.

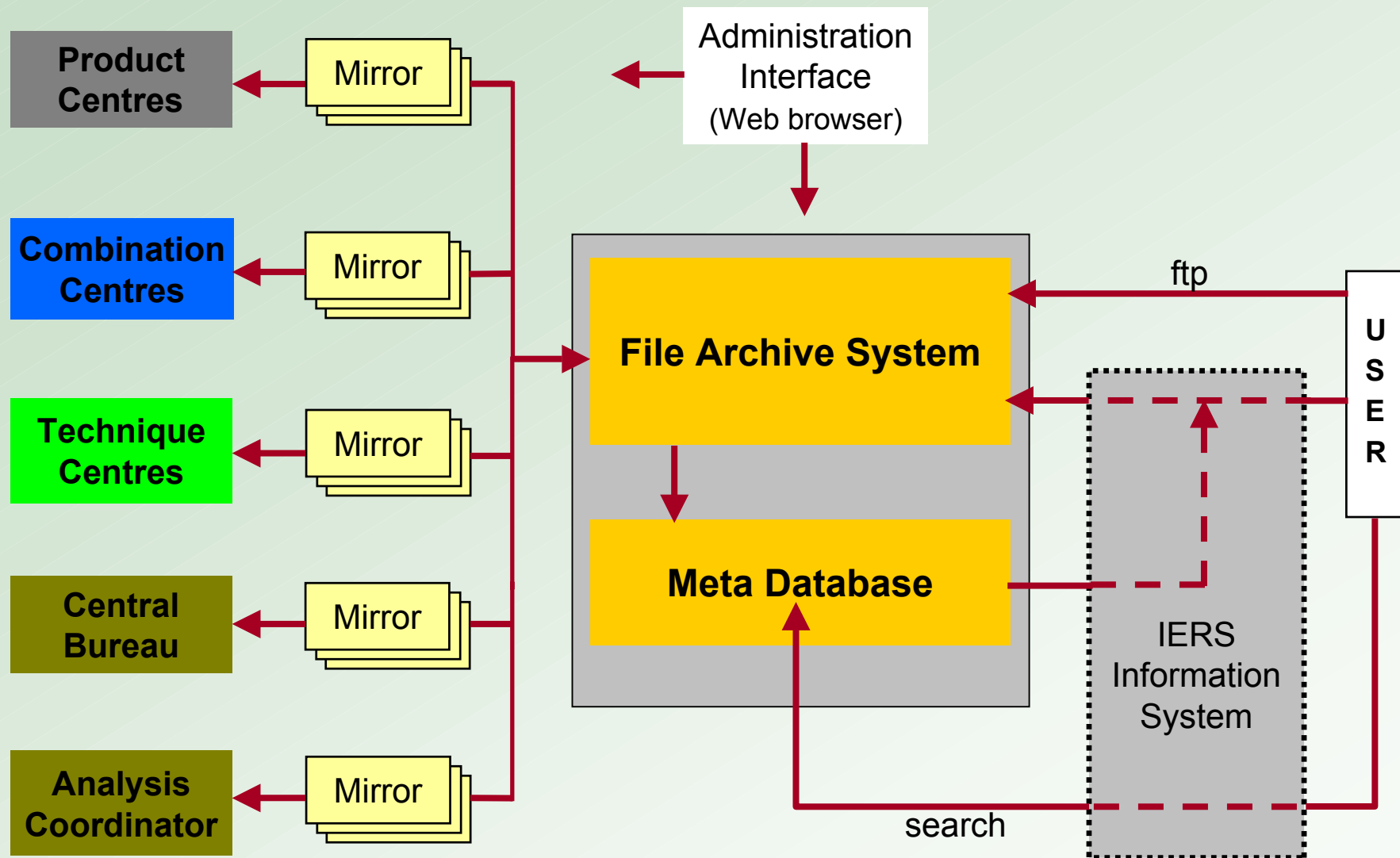


Realisation





Concept of the Data Management System





Data Management System: Mirror Definition



Data Center

Data Maintenance

Error Console

Logging

Mirrors

MetaData

RuleSet

RedList

GreenList

Special Folders

Consistency Check

Start Mirror

Mirror File Check

System Maintenance

System View

System History

Processes

Options

Projects

Users

Edit: Mirror

MirrorId 49: B22 BULLETIN B: IAU 2000A

Mirror Name	B22 BULLETIN B: IAU 2000A
Meta Data	B22 BULLETIN B: IAU2000A
Parser Identifier	B22
Remote Address	hpiers.obspm.fr
Protocol	HTTP
Remote Directory	/eoppc/bul/bulb/
Local Directory	/home/iers/local/archive/IERS/eop/bulletinb/iau2000/
Starttime	00 : 00 : 00
Repeat Rate	hourly
Whitelist	* + All bulletinb_iau2000.dat - All
Blacklist	* + All - All
Activate crontab	TRUE
File Type	other
Delete Local	FALSE
Archive	FALSE



IERS Combination Pilot Project: Status of Routine Weekly SINEX Generation

Intra- and inter-technique combination (October 05, 278/2005)

Technique	Institution	Step	Last Subm.	Delay (days)
IGS	NRCan	Intra-techn.	254/2005	24
ILRS	ASI	Intra-techn.	268/2005	10
IVS	GIUB	Intra-techn.	136/2005	142
IDS*	IGN	Intra-techn.	226/2005	52
ALL	GRGS	Inter-techn.	051/2005	-

*Individual analysis center

Detailed information about the available files:

- <http://iers1.bkg.bund.de/info/StatisticsCPP.php>
- <http://iers1.bkg.bund.de/info/listFileCPP.php>
- <http://iers1.bkg.bund.de/info/StatisticsITRF2004.php>
- <http://iers1.bkg.bund.de/info/listFileITRF2004.php>



CPP File Archive Statistics:

<http://iers1.bkg.bund.de/info/StatisticsCPP.php>

Combination Pilot Project (CPP) File Archive Statistics

Technique	Institution	FROM	TO	SINEX	SUMMARY	SUM
DORIS	IGN/JPL	003 / 1993	226 / 2005	658	659	1317
GPS	IGS/NRCan	059 / 1999	254 / 2005	342	342	684
SLR	ILRS/ASI	362 / 1992	268 / 2005	1312	1312	2624
VLBI	IVS/GIUB	004 / 1984	136 / 2005	2046	1	2047
combination	GRGS	002 / 2005	051 / 2005	8	0	8
SUM				4366	2314	6680

Technique	Institution	YEAR	SINEX	SUMMARY	SUM
DORIS	IGN/JPL	1993	52	52	104
		1994	52	52	104

Technique	Institution	FROM	TO	SINEX	SUMMARY	SUM
DORIS	IGN/JPL	003 / 1993	226 / 2005	658	659	1317
GPS	IGS/NRCan	059 / 1999	254 / 2005	342	342	684
SLR	ILRS/ASI	362 / 1992	268 / 2005	1312	1312	2624
VLBI	IVS/GIUB	004 / 1984	136 / 2005	2046	1	2047
combination	GRGS	002 / 2005	051 / 2005	8	0	8
SUM				4366	2314	6680

		----	0	1	1
GPS	IGS/NRCan	1999	44	44	88
		2000	53	53	106
		2001	52	52	104



CPP File Archive Listing:

<http://iers1.bkg.bund.de/info/listFileCPP.php>

IERS Combination Pilot Project (CPP) File Archive Listing

- Download a file by clicking on the respective name in column *File*, or via anonymous ftp from iers1.bkg.bund.de using directory shown in column *Directory*
- Use the radio buttons below
 - to sort by a specific column by clicking on the column's name or
 - to select files to be displayed by using the options below.

Total number of files: 6674

Number of selected files: 6674

Show source	Order by	Show data related to Technique	Show data related to Institution
☐ show ☒ hide	☒ received ☐ created ☐ directory ☐ file ☐ source	☒ all ☐ DORIS [D] ☐ GPS [P] ☐ SLR [L] ☐ VLBI [R]	☒ all ☐ ILRS/ASI [L] ☐ IGN/JPL [D] ☐ IGS [P] ☐ IVS [R] ☐ GRGS [DPLR]
SELECT			

Received	Created	Directory	Meta Data	File
2005-09-27 19:59:24	2005-09-27 12:54:00	/combination/intra-technique/DORIS/2005/	☐	ign05226d7_01.snz.Z
2005-09-27 19:59:24	2005-09-27 12:54:00	/combination/intra-technique/DORIS/2005/	☐	ign05226d7_01.sum.Z
2005-09-23 08:15:12	2005-09-23 00:39:00	/combination/intra-technique/GPS/2005/	☐	igs05247p7_01.snz.Z
2005-09-23 08:15:12	2005-09-23 00:39:00	/combination/intra-technique/GPS/2005/	☐	igs05247p7_01.sum.Z
2005-09-21 13:14:38	2005-09-21 06:18:00	/combination/intra-technique/SLR/2005/	☐	ilrsa05254i7_01.sum.Z
2005-09-21 13:14:38	2005-09-21 06:18:00	/combination/intra-technique/SLR/2005/	☐	ilrsa05254i7_01.snz.Z



CPP File Archive Listing: Meta Data

<http://iers1.bkg.bund.de/info/listFileCPP.php>

DESCRIPTION Agenzia Spaziale Italiana, CGS Matera, Italia
INPUT ILRS WEEKLY SOLUTIONS
OUTPUT SSC & EOP (PoleX, PoleY, LOD)
CONTACT cecilia@asi.it
SOFTWARE CoGeoS
HARDWARE PC PentiumIII

Product:	Contribution from ILRS (ASI) [SLR]
Content:	DESCRIPTION Agenzia Spaziale Italiana, CGS Matera, Italia INPUT ILRS WEEKLY SOLUTIONS OUTPUT SSC & EOP (PoleX, PoleY, LOD) CONTACT cecilia@asi.it SOFTWARE CoGeoS HARDWARE PC PentiumIII
Product Type:	FormattedText
Format:	SINEX V2.0
Keywords:	Contribution to CPP, ILRS (ASI), SLR, Laser, SINEX
Source:	ftp://cddis.gsfc.nasa.gov/pub/slr/products/pos+eop/030104/ilrsa.pos+eop.030104.v2.snx.Z
Created by:	International Laser Ranging Service (ILRS), Agenzia Spaziale Italiana (ASI)
Date:	20.04.2005
Contact:	cecilia.sciarretta@asi.it
Distribution:	Download
Path:	/combination/intra-technique/SLR/2002/
Fertig	



Search using Meta Data

IERS Datacenter

Datei Bearbeiten Ansicht Favoriten Extras ?

Zurück Suchen Favoriten Medien

Adresse D:\0407-Statusseminar2004\Poster\Search1.html Wechseln zu

**International Earth Rotation and Reference Systems Service**

ABOUT IERSDATA & PUBLICATIONGENERAL INFORMATIONNEWSLINKSFAQSITEMAP

DATA & PUBLICATION

- Data
- Publications
- Product search**

>>> [Contact us](#)

Search the webpage:

Find

[DATA & PUBLICATION > Product search](#)

Search the versions of product 'IERS_MESSAGE':

Product: IERS_MESSAGE

Meta field:	Keywords	value:	Workshop
Meta field:		value:	
Meta field:		value:	

combine with AND ☐ OR ☒

Date created: >01.01.2003 (use < and > for before and after)

Fulltext:

Search versions **Reset fields**

[Home](#) IERS Central Bureau at  Last modified: 01.04.2000

Arbeitsplatz



Search using Meta Data

The screenshot shows a web browser window titled "IERS Datacenter". The address bar displays "D:\0407-Statusseminar2004\Poster\Search2.html". The website header features the IERS logo and the text "International Earth Rotation and Reference Systems Service". A navigation bar includes links for "ABOUT IERS", "DATA & PUBLICATION", "GENERAL INFORMATION", "NEWS", "LINKS", "FAQ", and "SITEMAP". The "DATA & PUBLICATION" section is active, showing a sidebar with links to "Data", "Publications", and "Product search". The main content area displays "3 result(s) for product search found." and a search result for "Publications/IERS Message/IERS_MESSAGE", listing "IERS_MESSAGE: version '48'", "IERS_MESSAGE: version '47'", and "IERS_MESSAGE: version '45'". A search bar is visible on the left, and the footer includes a "Home" link, "IERS Central Bureau at bkg", and a "Last modified: 01.04.2000" timestamp.

IERS Datacenter

Datei Bearbeiten Ansicht Favoriten Extras ?

Zurück Suchen Favoriten Medien

Adresse D:\0407-Statusseminar2004\Poster\Search2.html Wechseln zu

International Earth Rotation and Reference Systems Service

ABOUT IERS DATA & PUBLICATION GENERAL INFORMATION NEWS LINKS FAQ SITEMAP

DATA & PUBLICATION

DATA & PUBLICATION > Product search

3 result(s) for product search found.

Searchresult for productsearch

Publications/IERS Message/IERS_MESSAGE

IERS_MESSAGE: version '48'

IERS_MESSAGE: version '47'

IERS_MESSAGE: version '45'

Home IERS Central Bureau at bkg Last modified: 01.04.2000

Arbeitsplatz



Search using Meta Data

IERS Datacenter

Datei Bearbeiten Ansicht Favoriten Extras ?

Zurück Suchen Favoriten Medien

Adresse D:\0407-Statusseminar2004\Poster\Search3.html

International Earth Rotation and Reference Systems Service

ABOUT IERS DATA & PUBLICATION GENERAL INFORMATION NEWS LINKS FAQ SITEMAP

DATA & PUBLICATION

Publications

- IERs Messages
- IERs Bulletins
- IERs Technical Notes
- IERs Annual Reports
- IERs Gazette

>>> Contact us

Search the webpage:

Find

[DATA & PUBLICATION > Publications](#)

IERs_MESSAGE: version '48'

CategoryPath : PUBLICATIONS/MESSAGES/

ProductName : IERS_MESSAGE

Content : The IERS Messages contain short and rapid information about the IERS and its products for contributors and users. They replace the IERS Gazettes, issued between 1996 and 2000.

ProductType : SimpleText

Format : ASCII

FormatDescription : Text

Documentation :

Title : IERS Message No. 48 November 17, 2003

Keywords : IERS Message, No. 48, Proceedings of IERS Workshop and Documentation of ITRF2000

Frequency : irregular

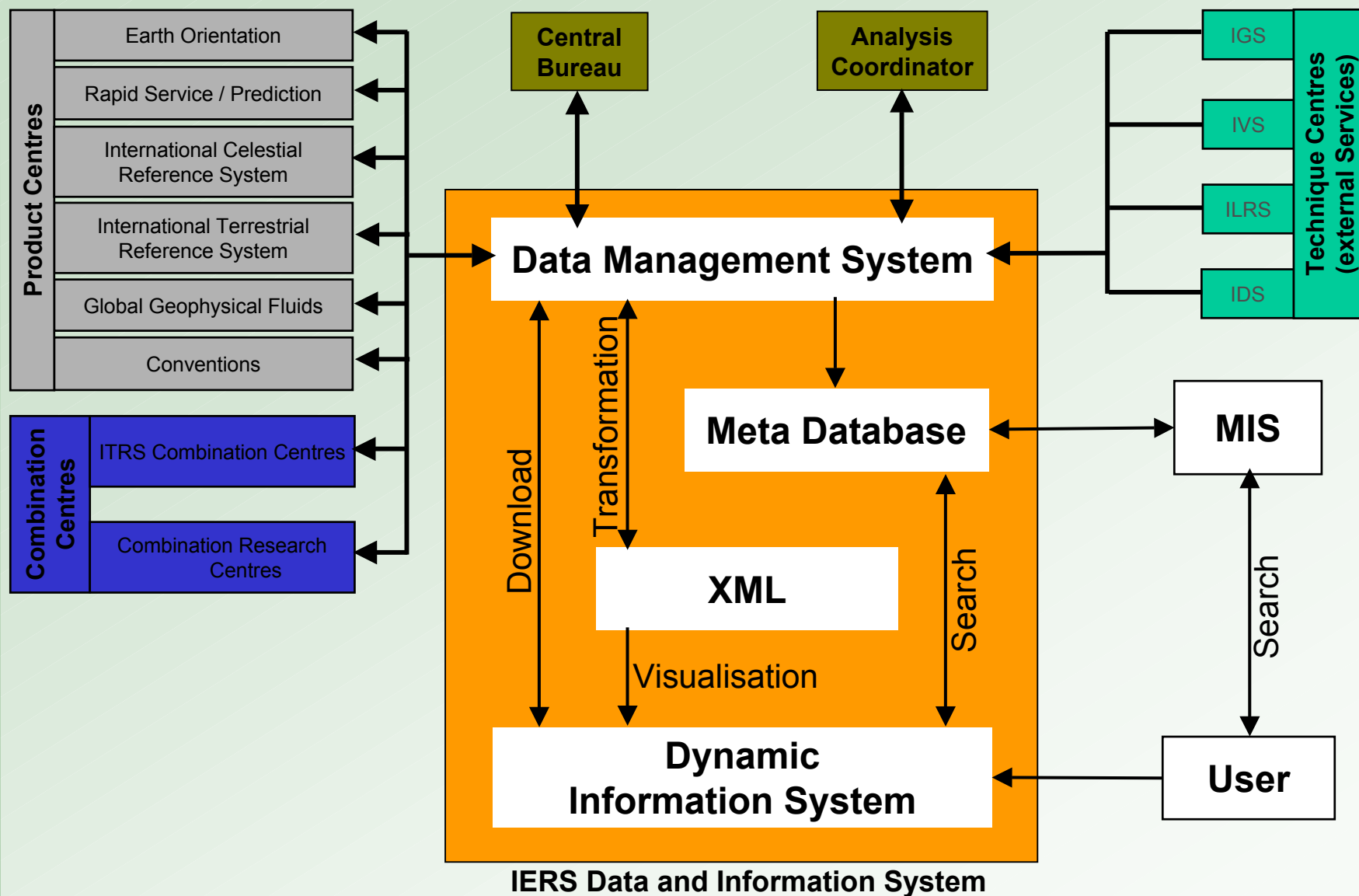
Archive : /root/publications/messages/

Source : message_48.txt

Lokales Intranet



Realisation



eXtensible Markup Language (XML)

- XML is ASCII and platform independent.

XML File

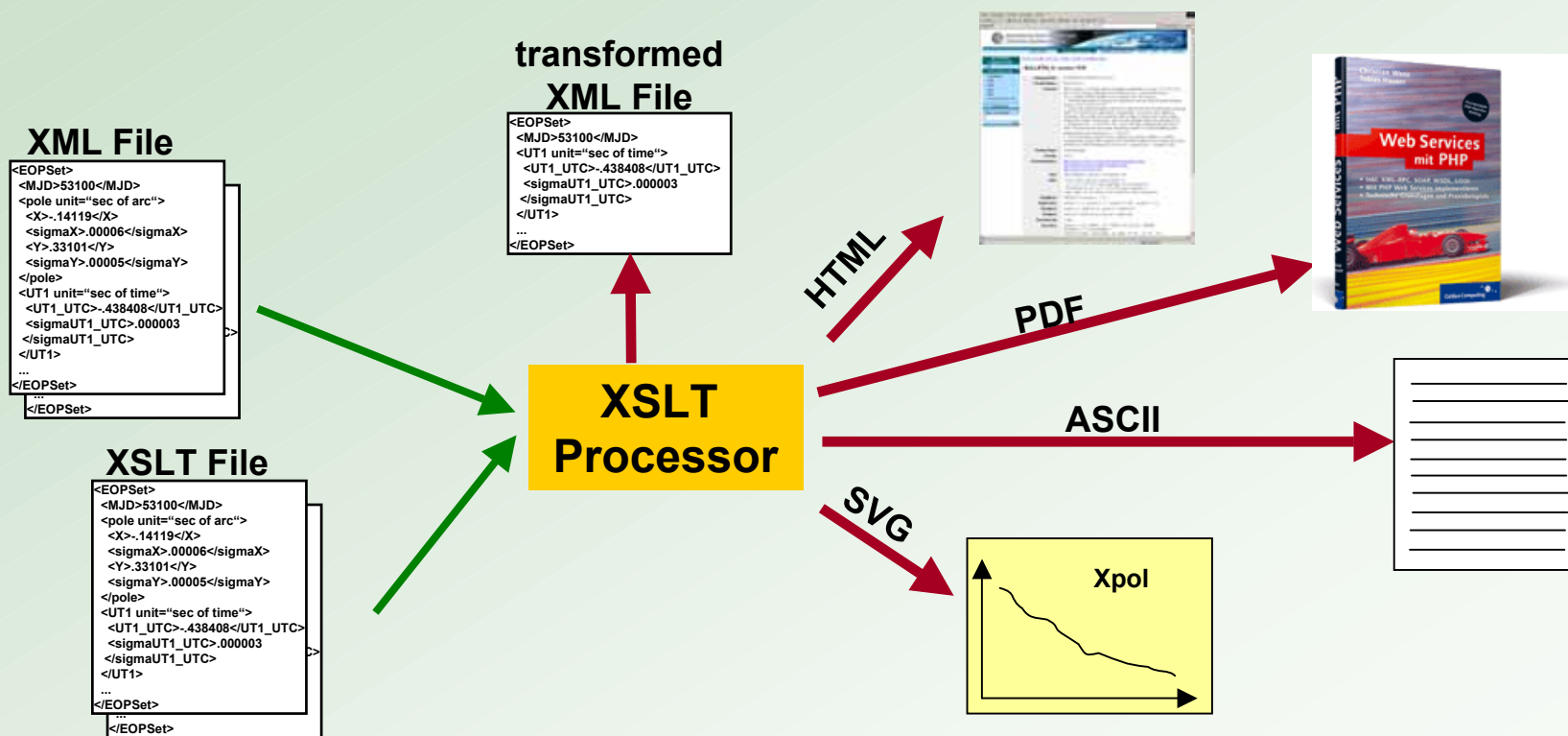
```
<EOPSet>
  <MJD>53100</MJD>
  <pole unit="sec of arc">
    <X>-.14119</X>
    <sigmaX>.00006</sigmaX>
    <Y>.33101</Y>
    <sigmaY>.00005</sigmaY>
  </pole>
  <UT1 unit="sec of time">
    <UT1.UTC>-.438408</UT1.UTC>
    <sigmaUT1.UTC>.000003
  </sigmaUT1.UTC>
  </UT1>
  ...
</EOPSet>
```

Human

Computer

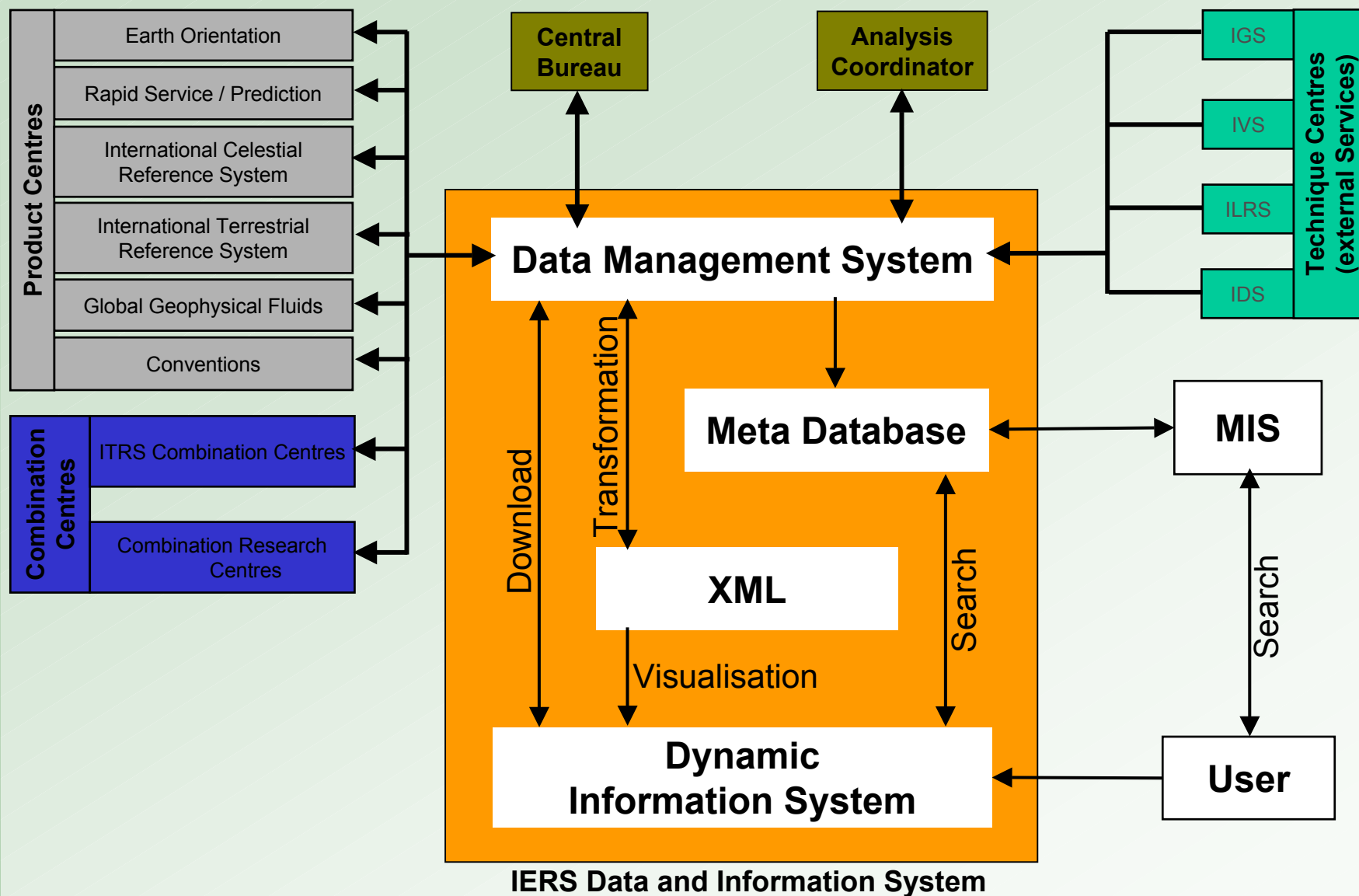
eXtensible Markup Language (XML)

- XML is ASCII and platform independent.
- Definition of document and data structures without specification of the layout.





Realisation





Dynamic IERS Information System

**International Earth Rotation and Reference Systems Service**

[IERS HOME](#) [ABOUT IERS](#) [PRODUCTS](#) [GENERAL INFORMATION](#) [NEWS / MEETINGS](#) [LINKS](#) [FAQ](#) [SITEMAP](#)

ABOUT IERS

- ▶ [Organization](#)
- ▶ [Directing Board](#)
- ▶ [Analysis Coordinator](#)
- ▶ [Product Centres](#)
- ▶ [Technique Centres](#)
- ▶ [Central Bureau](#)
- ▶ [Combination Centres](#)
- ▶ [Working Groups](#)
- ▶ [Workshops](#)

>>> [Contact us](#)

Search the webpage:

▶ [Find](#)

[ABOUT IERS](#)

Welcome to the International Earth Rotation and Reference Systems Service (IERS).

The IERS was established as the International Earth Rotation Service in 1987 by the International Astronomical Union and the International Union of Geodesy and Geophysics and it began operation on 1 January 1988. In 2003 it was renamed to International Earth Rotation and Reference Systems Service.

The primary objectives of the IERS are to serve the astronomical, geodetic and geophysical communities by providing the following:

- ♦ The International Celestial Reference System (ICRS) and its realization, the International Celestial Reference Frame (ICRF).
- ♦ The International Terrestrial Reference System (ITRS) and its realization, the International Terrestrial Reference Frame (ITRF).
- ♦ Earth orientation parameters required to study earth orientation variations and to transform between the ICRF and the ITRF.
- ♦ Geophysical data to interpret time/space variations in the ICRF, ITRF or earth orientation parameters, and model such variations.
- ♦ Standards, constants and models (i.e., conventions) encouraging international adherence.

As of 1 January 2001 the IERS has got a new structure, which is also reflected in this new Web site.

[Home](#)  IERS Central Bureau at  Last modified: 09.05.2005



Dynamic Information System: Product Information

The screenshot shows a web browser window displaying the IERS website. The address bar shows the path: C:\Dokumente und Einstellungen\schwemg\Meine Daten\Geo\BuletinA_V16.html. The website header includes the IERS logo and the text "International Earth Rotation and Reference Systems Service". A navigation menu at the top includes links for ABOUT IERS, DATA & PUBLICATION, GENERAL INFORMATION, NEWS, LINKS, FAQ, and SITEMAP. The left sidebar contains a "DATA & PUBLICATION" section with a tree view showing "Data", "Earth orientation data", "Conventions", "IGRS", "IGRF", "ITRS", "IIRF", and "Geophysical fluids data". The main content area displays the "BULLETIN_A: version '016'" product information. The information is organized into sections: CategoryPath, ProductName, Content, ProductType, Format, Documentation, Title, Data, DataMode, DataPoints, TimeStart, TimeEnd, TimeInterval, and Accuracy. The Content section provides a detailed description of the bulletin, including its purpose and the data it contains. The Data section lists the specific data series and their units. The TimeStart and TimeEnd sections provide the time range for the data. The TimeInterval section indicates the frequency of the data. The Accuracy section provides the estimated accuracy of the data.

BULLETIN_A: version '016'

CategoryPath : EOP/RAPID_EOP/BULLETIN_A/

ProductName : BULLETIN_A

Content : IERS Bulletin A contains Earth orientation parameters x/y pole, UT1-UTC and their errors at daily intervals and predictions for 1 year into the future. The contents of IERS Bulletin A are divided into four sections:
1. General information including key definitions and the most recently adopted values of DUT1 and TAI-UTC.
2. Quick-look daily estimates of the EOPs determined by smoothing the observed data. This involves the application of systematic corrections and statistical weighting. The results are published with a delay of about one to three days between the date of publication and the last available date with estimated EOP.
3. Predictions of x, y, and UT1-UTC, up to 365 days following the last day of data. The predictions use similar algorithms based on seasonal filtering and autoregressive processing for x, y, and UT1.
4. The combination series for the celestial pole offsets. Bulletin A contains celestial pole offsets with respect to the IAU1980 Nutation theory (dpsi and deps) and the IAU 2000 Resolutions (dX and dY), beginning on 1 January 2003.

ProductType : TextAndTables

Format : ASCII

Documentation : <http://ftp.iers.org/obs/rapid/rapid/bul/bul/explanatory.html>
<http://maia.usno.navy.mil/ser7/readme/bulla>
<http://maia.usno.navy.mil/>

Title : IERS Bulletin A Volume XVII Number 016

Data :
- DUT1 (sec), TAI-UTC (sec) (section 1)
- x ("), y ("), UT1-UTC (sec) and their errors (section 2)
- Predictions for x ("), y ("), UT1-UTC (sec) (section 3)
- dpsi, deps, dX, dY (msec of arc) and their errors (section 4)

DataMode : SERIES (for section 2, 3, 4)

DataPoints : section 1 = 3, section 2 = 7, section 3 = 365, section 4 = 22

TimeStart : section 2 = 2004-04-16, section 3 = 2004-4-23

TimeEnd : section2 = 2004-04-22, section3 = 2005-4-22

TimeInterval : 1 day

Accuracy : Section 2: x ["]: .00003, y ["]: .00003, UT1-UTC [s]: .000006
Estimated, c.f. Documentation
Section 4: [msec. of arc] dpsi: .32, deps: .15, dX: .127, dY: .151



Dynamic Information System: Product Information

The screenshot displays the IERS Data and Information System web interface. The left sidebar contains navigation links for 'DATA & PUBLICATION', 'ABOUT IERS', and 'CONTACT us'. The main content area shows the product information for 'BULLETIN_A: ve'. The product details are as follows:

ProductType: TextAndTables
Format: ASCII
Documentation: <http://hpiers.obspm.fr/eoppc/bul/bulb/explanatory.html>
<ftp://maia.usno.navy.mil/ser7/readme.bulla>
<http://maia.usno.navy.mil/>

Title: IERS Bulletin A Volume XVII Number 016
Data:
- DUT1 (sec), TAI-UTC (sec) (section 1)
- x ("), y ("), UT1-UTC (sec) and their errors (section 2)
- Predictions for x ("), y ("), UT1-UTC (sec) (section 3)
- dpsi, deps, dX, dY (msec of arc) and their errors (section 4)

DataMode: SERIES (for section 2, 3, 4)
DataPoints: section 1 = 3, section 2 = 7, section 3 = 365, section 4 = 22
TimeStart: section 2 = 2004-04-16, section 3 = 2004-4-23
TimeEnd: section2 = 2004-04-22, section3 = 2005-4-22
TimeInterval: 1 day
Accuracy: Section 2: x ["] : .00003, y ["] : .00003, UT1-UTC [s] : .000006
Estimated, c.f. Documentation
Section 4: [msec. of arc] dpsi: .32, deps: .15, dX: .127, dY: .151

Keywords: EOP, Rapid, Bulletin A, Earth orientation parameter, Volume XVII, Number 016
Frequency: weekly
Source: <ftp://maia.usno.navy.mil/ser7/ser7.dat>
CreatedBy: IERS Rapid Service Prediction Centre
Date: 2004-04-22
Contact: ser7@maia.usno.navy.mil
Distribution: E-Mail, Mail, Download
E-MailSubscription: <http://maia.usno.navy.mil/>
Volume: XVII
Number: 016

Available downloads:
- [original file \(unvalidated\)](#)
- [HTML-format](#)
- [Original format \(validated\)-format](#)
- [PDF-format](#)

The bottom of the page shows the 'Home' link, 'IERS Central Bureau at bkg', and 'Last modified: 01.04.2000'.



Dynamic Information System: IERS Directing Board



**International Earth Rotation and
Reference Systems Service**

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ABOUT IERS

- Organization
- Directing Board**
- Analysis Coordinator
- Product Centres
- Technique Centres
- Central Bureau
- Combination Centres
- Working Groups
- Workshops

[Contact us](#)

Search the webpage:

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[ABOUT IERS > Directing Board](#)

IERS Directing Board

The DB exercises general control over the activities of the service and modifies the organization as appropriate to maintain efficiency and reliability, while taking full advantage of the advances in technology and theory.

Chair : [Chopo Ma](#)

Function/ Representative of	Name	Institution
■ Analysis Coordinator	Markus Rothacher	GeoForschungsZentrum Potsdam (GFZ)
■ Product Centres		
Earth Orientation	Daniel Gambis	Observatoire de Paris
Rapid Service/ Prediction	William Wooden	U.S. Naval Observatory [USNO]
Conventions	Gerard Petit	Bureau International des Poids et Mesures [BIPM]
ICRS	Ralph Gaume	U.S. Naval Observatory [USNO]
ITRS	Zuheir Altamimi	Institut Géographique National [IGN]
Global Geophys. Fluids	Tonie van Dam	European Center for Geodynamics and Seismology [ECGS]

Summary

- All products of the IERS are archived within the Data and Information System and are available for the users.
- Meta data with respect to the products allow to search for specific data sets and to take advantage of MIS in order to acquire new users.
- XML as internal standardised format for all data sets allows to transform the data into any format and to exchange the data inside and outside the IERS.
- The dynamic Information System provides consistent and up to date information to the users while reducing the efforts for content management and system maintenance.



Outlook

- It is planned to make the IERS Data and Information System available to all users in **December, 2005**.
- In the future IERS data sets might be referenced by a Document Object Identifier (DOI). This is currently under investigation.
- Tools for the visualisation and combination of the data sets based on XML are currently under development.