



Federal Agency for
Cartography and Geodesy

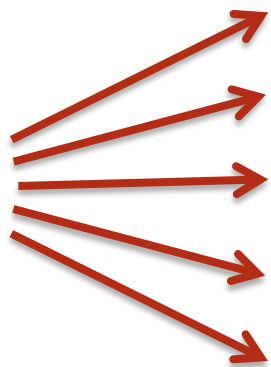
GGOS Portal and Meta Data

Bernd Richter and Carey Noll

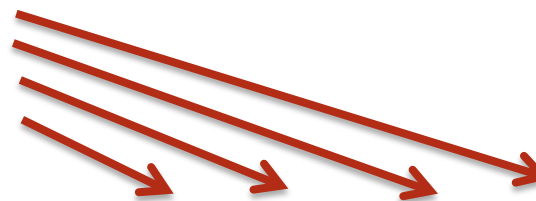
Federal Agency for Cartography and Geodesy
NASA Goddard Space Flight Center



- The IAG Services already produce very important and valuable products to be promoted by GGOS
- Each Service has its own Web site for data access
- Fragmentation at national, regional and international level
- Users get lost in mountains of information



- Promotion of all IAG products for Earth sciences and applications through the GGOS portal, as a department store for all IAG products



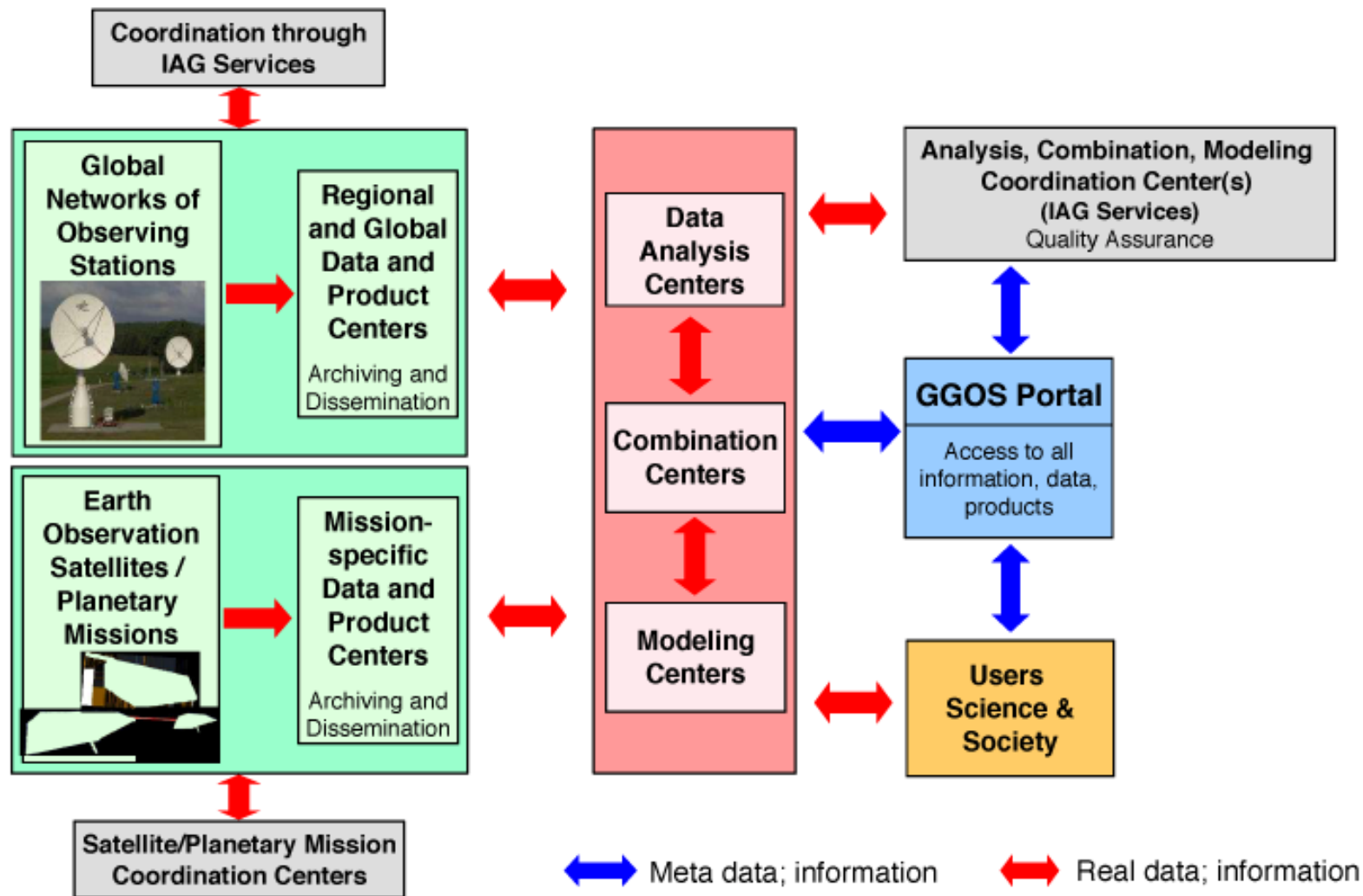


Provide a unique access point for all products and information relevant in the framework of GGOS!

- Maintenance of a GGOS Web site:
 - general information (structure, components, news, announcements, publications, links, ...);
 - facilitate GGOS communication (calendars, bibliography, working group activities, meeting summaries, ...);
- Maintenance of a GGOS Portal & Clearinghouse):
 - Discovery: search data and service catalogues (local&external);
 - Metadata Editor: collect & manage metadata;
 - Viewer: display data;
 - Applications for data mining of GGOS products and data files, i.e. parse, merge, visualize and analyse data;

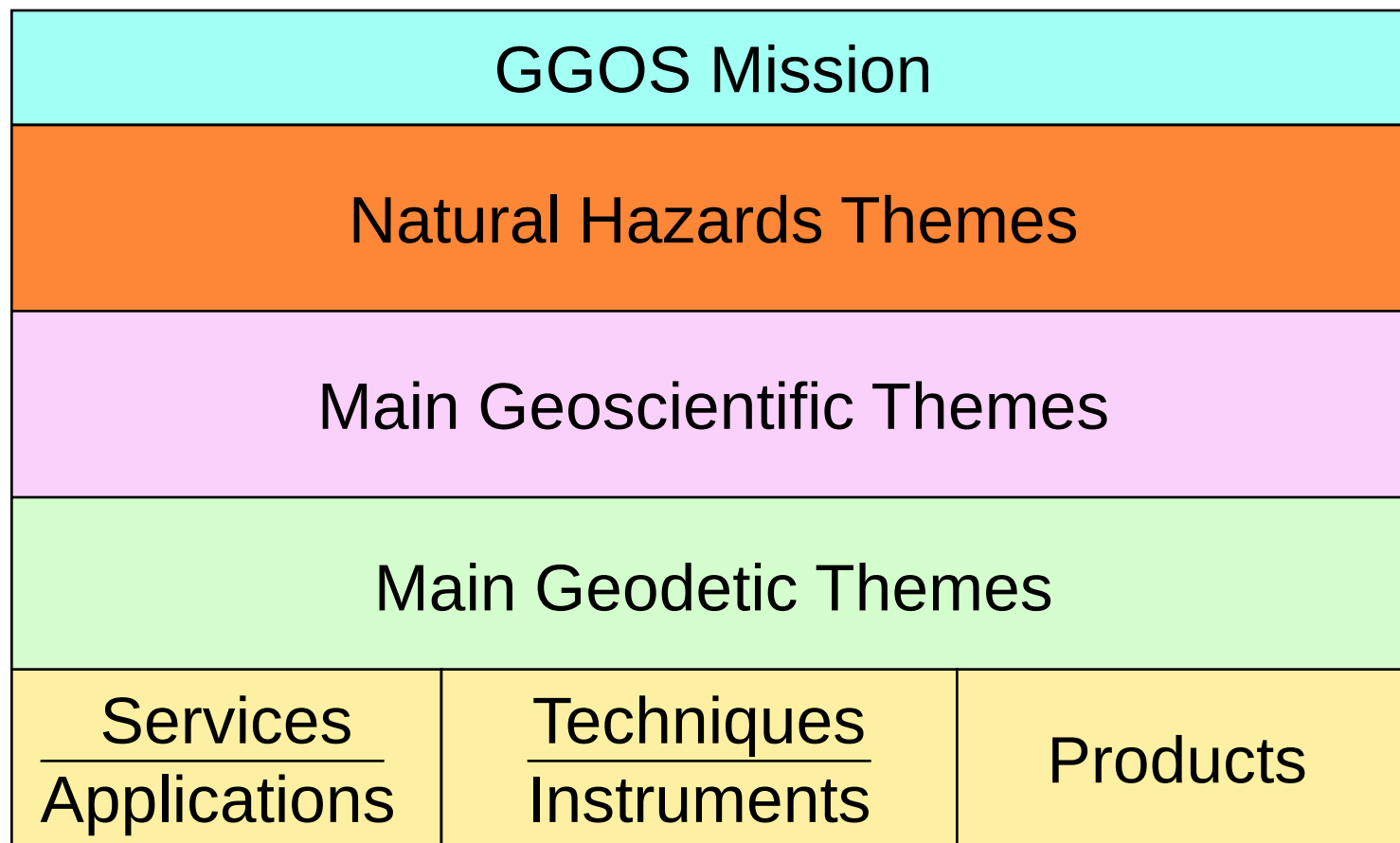


GGOS System Design



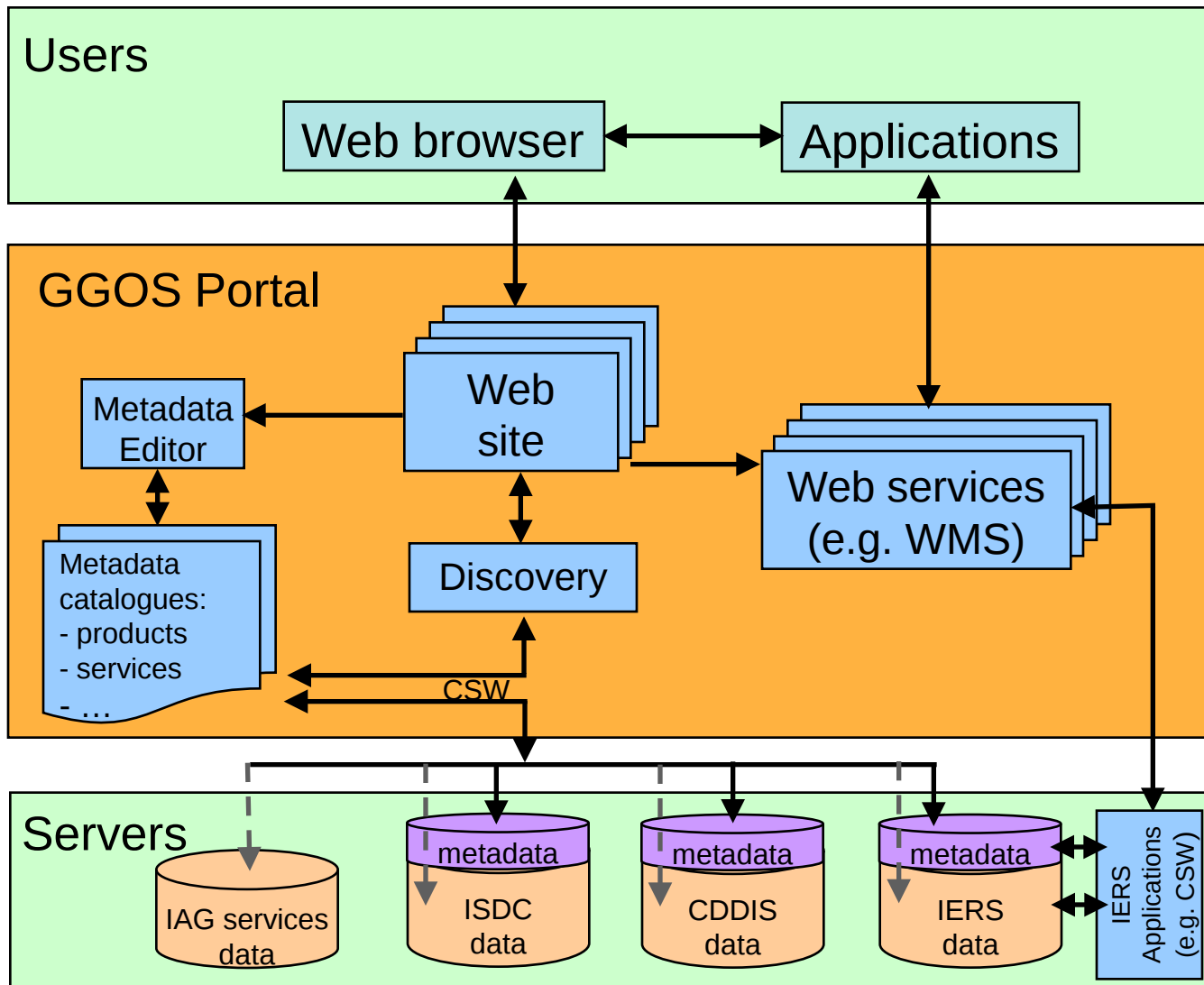


<http://www.ggos.org> => structure of home page,
multiple entries to serve all interests





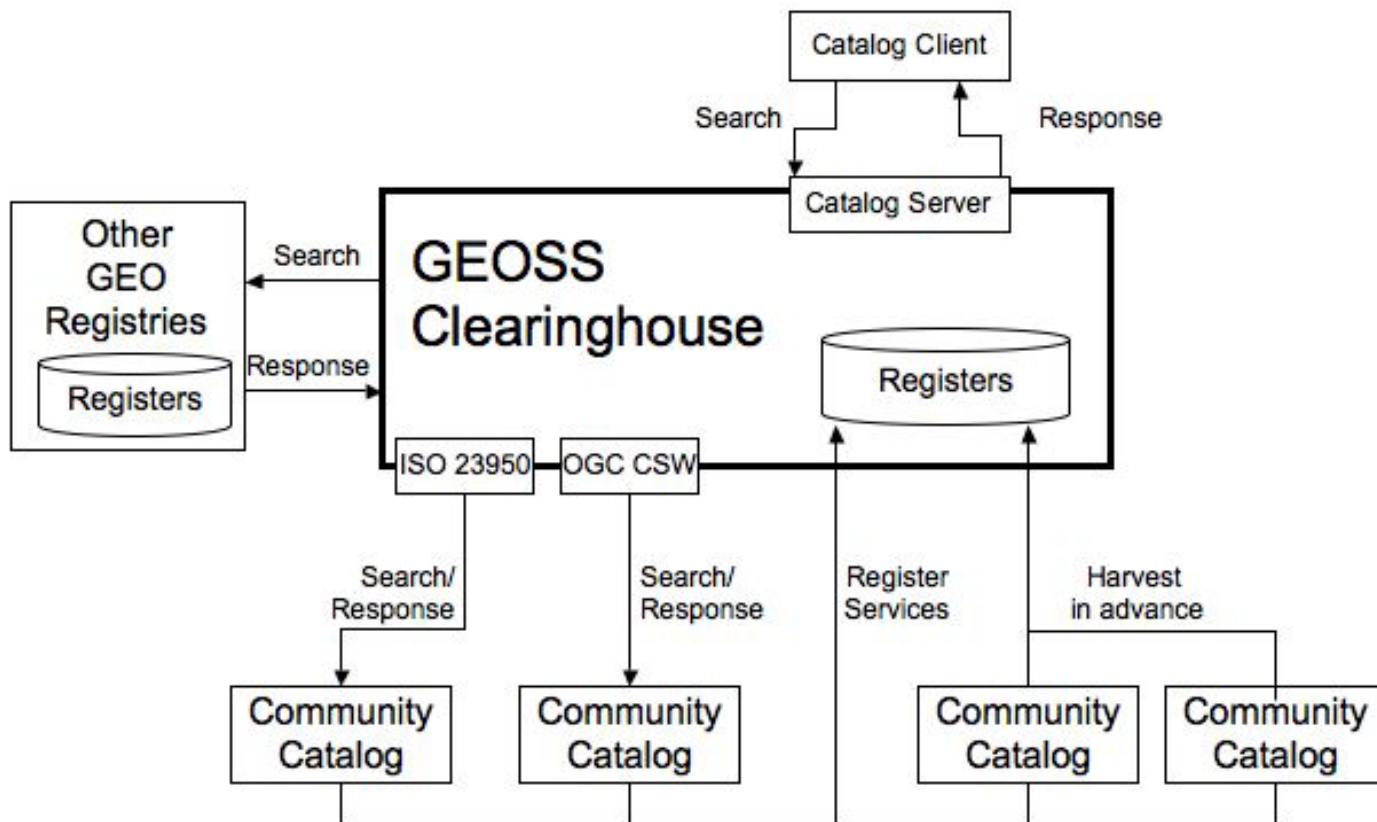
GGOS Portal: Architecture





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GGOS Clearinghouse architecture engineering viewpoint





Global Geodetic Observing System - Home - Windows Internet Explorer

http://preview.ggos.org/sid_CCFB8104359D78DA4047DA843AFDCE36/GGOS/EN/Home/homepage.html?__nnn=true

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The Global Geodetic Observing System (GGOS)

GGOS is the Observing System of the International Association of Geodesy (IAG). GGOS works with the IAG components to provide the geodetic infrastructure necessary for monitoring the Earth system and for global change research.

The GGOS Portal will provide a unique access point to all geodetic products. Thus, the Portal will emphasize Geodesy's contribution to Earth Observation for assessing geohazards and reducing disaster. The Portal consists of the GGOS Web site and the portal itself, comprising geoportal components like a clearinghouse, a map viewer, and a metadata editor.

The GGOS Portal is currently under development. The GGOS Web site will be launched in December 2009 and a first basic version of the portal will be available in the beginning of 2010.

Source: A. Helm (GFZ)

Source: BKG

News

- Community White Paper for OceanObs09
- Second IGCP 565 Workshop took place
- GGOS 2020 Book published
- More

Meetings

- Unified Analysis Workshop 2009
- Unified Analysis Workshop 2009
- The Future of IAG Services
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Introduction

GGOS is the Observing System of the International Association of Geodesy (IAG). GGOS was established by IAG in July 2003. Since April 2004, GGOS represents IAG in the Group on Earth Observation (GEO) and GGOS is IAG's contribution to the Global Earth Observation System of Systems (GEOSS).

The international cooperation fostered by IAG has led to the establishment of the IAG Services, that provide increasingly valuable observations and products not only to scientist but also for a wide range of non-scientific applications. Considering this development in geodesy, the requirements of Earth observations, and the increasing societal needs, IAG initially created GGOS as an IAG Project during the IUGG meeting in 2003 in Sapporo, Japan. After the first two years devoted to the definition of the internal organizational structure of GGOS and its relationship with external organizations (the "Design Phase"), the Executive Committee of the IAG at its meetings in August 2005 in Cairns, Australia, decided to continue the Project. In the "Implementation Phase" from 2005 to 2007, the GGOS Steering Committee, Executive Committee, Science Panel, Working Groups, and Web Pages were established, and the Terms of Reference were revised. Finally, at the IUGG meeting in 2007 in Perugia, Italy, IAG elevated GGOS to the status of a full component of IAG as the permanent observing system of IAG.

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 - Executive Committee
 - Bureau of Networks and Communications**
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- Personnel**
 - Workplan
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- Science Panel
- Working Groups

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Key Personnel

- Director: [Dr. Michael Pearlman/CfA, USA](#)
- Associate Director: [Carey Noll/NASA GSFC, USA](#)
- Science Coordinator: [Erricos Pavlis/JCET UMBC, USA](#)
- Co-location Coordinator: Zuheir Altamimi/IGN, France
- IAG Service Representatives:
 - IGS: Steve Fisher/JPL
 - ILRS: Michael Pearlman/CfA, USA
 - IVS: Dirk Behrend/NVI/NASA GSFC, USA
 - IDS: Frank Lemoine/NASA GSFC, USA
 - IERS: Bernd Richter/BKG, Germany
 - IGFS: Steve Kenyon/NGA, USA

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Workshops

- ▶ Graz 2009 Workshops
- ▶ GGOS DynaQlim Espos 2009
- ▶ IGCP 565 San Francisco 2009
- ▶ Monterey 2007 Workshop
- ▶ Frascati 2007 Workshop
- ▶ Munich 2006 Workshop

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GGOS Workshops

Currently planned/scheduled Workshops and sessions organized or sponsored by GGOS include and past GGOS Workshops, which are documented through specific pages.

Forthcoming Workshops

Date	Title	Location	Workshop page
10.12.2009 - 11.12.2009	Unified Analysis Workshop 2009	San Francisco Area	▶ more...

Past Workshops

Date	Title	Location	Workshop page
30.09.2009 - 02.10.2009	Towards a Roadmap for Gravity Satellite Missions	Graz, Austria	▶ more...
30.08.2009	16-th Meeting of the GGOS Steering Committee	Buenos Aires, Argentina	▶ more...
23.06.2009 - 26.06.2009	GGOS Science Workshop 2009: A Joint DynaQlim/GGOS Workshop	Espoo, Finland	▶ more...
April 2009	GGOS session at EGU	Vienna, Austria	



Global Geodetic Observing System Portal - Home - Windows Internet Explorer

http://preview.ggos-portal.org/sid_23AF09B1E110BAA840B9C0F9B229F1A9/GGOS-Portal/EN/Home/homepage.html?_nnn=true

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Unified Analysis Workshop, San Francisco, December 11-12, 2009

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Discovery



Simple search
Direct search link without additional specifications.



Advanced search
Refine your search with respect to space, category and time.



Assisted search
Our assistant will guide you through the advanced search to the results.

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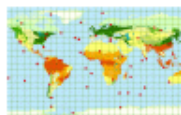


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Viewer & Applications



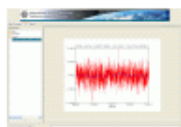
GGOS map viewer

Web map viewer for GGOS related resources.



Time series viewer

Display time series of geodetic-geophysical time series.



Applications

Web based applications for time series data.

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GGOS Products

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Overview of GGOS Products and Infrastructure

GGOS products are provided through the IAG Services. The Services maintain their own web sites with information on sites and products.

Infrastructure inventories:

- List of ILRS/SLR sites: <http://ilrs.gsfc.nasa.gov/stations/sitelist/index.html>
- List of IGS/GNSS sites: <http://igscb.jpl.nasa.gov/network/list.html>
- List of IVS/VLBI sites: <http://ivsc.gsfc.nasa.gov/about/org/components/ns-list.html>
- List of IDS/DORIS sites: <http://ids.cls.fr/html/doris/sitelog.php3>
- Lists of correlated sites of all these services (IGS/ILRS/IVS/IDS): http://indigo.nasa.gov/sgp_locations_full_db_site.html

Product inventories:

- Inventory ILRS: http://ilrs.gsfc.nasa.gov/products_formats_procedures/index.html
- Inventory IGS: <http://igscb.jpl.nasa.gov/components/compindex.html>
- Inventory IVS: <http://ivsc.gsfc.nasa.gov/products-data/index.html>
- Inventory IDS: <http://ids.cls.fr/html/data-products/info.html>
- Inventory IAS: <http://ias.dgfi.badw.de/index.php?id=31>

Links to global reference systems and frames:

- [International Terrestrial Reference Frame](#)
- [International Celestial Reference Frame](#)

Links to regional reference systems and frames:

- [African Geodetic Reference Frame \(AFREF\)](#)
- [Asia and Pacific Regional Geodetic Project \(APRGP\)](#)
- [Permanent Committee on GIS Infrastructure for Asia and the Pacific \(PCGIAP\)](#)
- [European Position Determination System \(EUPOS\)](#)

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Metadata - a prerequisite to re-use geodetic data sets

- Metadata provide information about the identification, the extent, the quality, the spatial and temporal schema, the spatial reference and the distribution of data.
- Metadata are capable of locating, evaluating, extracting, and employing the required datasets.



- **Metadata standards are a prerequisite for interoperable and interdisciplinary search**
- **Choice of meta data catalogue**
 - Directory Interchange Format (DIF) developed by NASA (Global Change Master Directory), focused on science, used by Marine Environmental Data Inventory (MEDI) or at GFZ
 - ISO 19XXX standards (widely used standard in GIS, WMO, ...)
 - ISO 19115 Meta data
 - ISO 19119 Geographic information - services
 - ISO 19139 Data Exchange - XML schema implementation
- **Interoperability** by cross-mapping the different metadata standards



Proposal for GGOS Core Metadata

ISO19115 metadata entity set information	ISO No	Metadata elements	ISO core	GGOS
MD_Metadata	2	Metadata file identifier	o	o
	10	Metadata standard name	o	o
	11	Metadata standard version	o	o
	3	Metadata language	c	c
	4	Metadata character set	c	c
	8	Metadata point of contact	m	m
	9	Metadata date stamp	m	m
	6	Scope to which the metadata applies	(o)	c
MD_Identification	360	Dataset title	m	m
	361	Dataset short title	(o)	o
	362	Dataset reference date	m	m
	29	Dataset responsible party	o	m
	25	Abstract describing the dataset	m	m
	33	Descriptive keywords	(o)	m
	28	Status	(o)	o
MD_DataIdentification	37	Spatial representation type	o	o
	38	Spatial resolution of the dataset	o	m
	39	Dataset language	m	m
	40	Dataset character set	c	c
	41	Dataset topic category	m	m
	42	Geographic location		
	45	Vertical and temporal extent of dataset	o	m



GGOS-D: Metadata Management – SINEX files

```
DGF06337L7_b04.snz - WordPad
Datei Bearbeiten Ansicht Einfügen Format ?

%SNX 2.00 DGF 08:157:33056 DGF 06:337:43795 06:343:36685 06:00097 2 8 8
*-----
+FILE/REFERENCE
  DESCRIPTION      DEUTSCHES GEODÄTISCHES FORSCHUNGSIINSTITUT (DGFI)
  OUTPUT           SSC(DGFI) gg0s-d
  CONTACT          mueller@dgfi.badw.de
  SOFTWARE         DOGS_OC 4.08 and DOGS_CS 4.07
  HARDWARE         PC, Pentium 2,4 GHz 1Gb Ram, Linux, SuSE 10.1
  INPUT           LAGEOS-1/2 SLR data processed by DGFI
-FILE/REFERENCE
*-----
+FILE/METADATA
*
  FILENAME         DGF06337L7_b04.snz.Z
  TITLE            GGOS-D DGFI SLR solution 2nd iteration version b04 (GFZ)
  ALTERNATETITLE   GGOS-D DGFI SLR solution
  ABSTRACT         Weekly SINEX file of DGFI SLR solution for GGOS-D
                  (single technique solution).
                  Standards, models and parameterization are choosen with
                  respect to the GGOS-D conventions for the 2nd iteration.
                  With the strict use of common standards within GGOS-D
                  a consistent reprocessing and combination of the space
                  geodetic techniques should be achieved.

  IDENTIFIER       DGF06337L7_b04
  STATUS           completed
  LANGUAGE         en
  CHARSET          UTF8
  DATE            2008-06-05 09:10:56
  DATETYPE         creation
  FORMATNAME       SINEX
  FORMATVERSION    2.00
  MEDIUMNAME      onLine
  LINK&GE         ftp://ftp.ggos-d.de/data/test/2004/DGF/DGF06337L7_b04.snz.gz

Drücken Sie F1, um die Hilfe aufzurufen.
```

Extension of SINEX Format by one block
„FILE/METADATA“:

- Consist of approx. 50 Metadata elements, ISO „recommended core elements“
- Compatibel to GEO, GeoPortal.Bund (IERS).





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MetadataIdentificationClassificationKeywordGeographicTemporalQuality&ValidityConformityConstraintsOrganization

Identification

Resource title

Resource abstract

Resource Type

dataset

Resource Locator

Add

Remove Selected

Unique resource identifier

Code

Add

Namespace

Remove Selected

Resource language

... please choose ...

Add

Remove Selected

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Modification date: 28.08.2009

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Identification

Resource title

Resource abstract

 **Abstract is mandatory.**

Resource Type dataset

Resource Locator

Unique resource identifier

Code		Add
Namespace		
	Remove Selected	

 **At least one unique resource identifier is required.**

Resource language



GGOS WG on DIS will

- develop and provide suggestions for an uniform access to heterogeneous space geodetic and in-situ data and information systems
- evolve GGOS portal
- promote use of web standards and conventions
- support implementation of metadata management in the services for GGOS
- work on interoperability with other data bases and services i.e., interfaces for machine-to-machine communication
- align with GEOSS (Group on Earth Observations System of Systems) approach and methodology



Membership list:

- Bernd Richter chair / IERS
 - Carey Noll chair / ILRS
 - Wolfgang Schwegmann (03/2010) Portal manager
 - Ruth Neilan IGS
 - Laurent Soudarin IDS
 - Dirk Behrend IVS
 - Franz Barthelmes ICGEM
 - Jean-Pierre Barriot ICET
 - Sylvain Bonvalot BGI
 - Lesley Rickards PSMSL
 - Felicitas Arias BIPM
- GEOMETRY**
- GRAVITY**
- SEA LEVEL**
- TIME Service**



- Global and interdisciplinary networks of data make high demands on data management in projects like GGOS and GEOSS
- Interoperability of data and services request the consequent use of standardized
 - Meta data
 - Data formats
 - Web services
- GGOS web & portal will provide the necessary technique
- GGOS WG DIS will support the GGOS web and portal development and the services

but

the services have to provide the data and information