Global Geodetic Observing System

Definition of the GGOS Data Portal

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Bernd Richter, Bente Lilja Bye, Angelyn Moore, Carey Noll

Contents

Purpose and scope

This document defines the Global Geodetic Observing System (GGOS) data portal. The data portal will give access to all data produced under the IAG as well as general information about geodesy. The document is made as part of the GGOS implementation of its objectives to promote and improve the visibility of scientific research in geodesy and to achieve maximum benefit for the scientific community and in society in general.

1 Summary

2 Introduction

The IAG Services provide very important and valuable data, information and products which are indispensable for Earth sciences and their applications. GGOS will promote these products through an internet portal.
Starting with the burning questions of the society and it will lead the way from there to the geodetic products, their characteristics, location, availability, latency, accuracy, etc. (cp. presentation Rothacher , GGOS retreat or http://gcmd.nasa.gov/index.html)

3 General considerations and design criteria

The GGOS Web portal will be the gateway to Geodetic products relevant in the frame work of GGOS.
It will be

- a Web site that aims to be a major starting site for users when they search the Web and will present a range of services and content,
- offer a set of tools for organized knowledge discovery to assist identification and selection of appropriate target resources (information and data),
- provide searching and information retrieval of descriptive metadata from multiple, diverse target resources, databases, Web pages, and library catalogues.
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The GGOS Web portal will
provide information about:

- GGOS / IAG service infrastructure,
- International partners,
- Calendre,
- ….

provide applications like:

- search engine,
- map viewer,
- demonstration and plot tools,
- …

link to:

- information and data resources
- science topics
- services, agencies, institutions,
- associations and societies,
- …

Behind the Web portal each service will have its own visibility and responsibility to maintain and management of its own data & information system.

4 The GGOS elements

Each of the potential contributors (see below) to the GGOS portal should report the data nad information structure within its service/commission/working group. As an example a more detailed structure is presented for the IGS.

IAG services

International GNSS Service

The GNSS data server

General comments on the data model

The GNSS Data Server Data Base Structure

The GNSS Data Server master files

The GNSS Observing Site Documentation

The GNSS data directories

International VLBI Service

structure as for the GNSS service.....

International Laser Ranging Service

International Gravity Field Service

International Gravimetric Bureau

International Geoid Service

International Center for Earth Tides

International Center for Global Earth Model

International Earth Rotation and Reference Systems Service

Permanent Service for Mean Sea Level

Time Section of the International Bureau of Weight and Measures

International Doris Service

IAG Commissions

Reference Frames

Gravity Field

Earth Rotation and Geodynamics

Positioning and Application

GGOS Working Groups

Data and Information

Outreach

Network

Missions

Conventions

Publishing and legal matters

5 The GGOS Data Access Manager

Behind the Web portal each service will have its own visibility and responsibility to maintain and management of its own data & information system.

6 The GGOS Product delivery

GGOS WG on Data and Information will develop a proposal in cooperation with the GGOS WG on Linkage and Outreach and the host agency of the portal

7 Definitions and Main Concepts

Hardware

will not be discussed, it should be available through the host agency.

Applications and requirements

To create and maintain the growing number of the portal Web pages a Content Management System (CMS) is necessary. Usually it also allows to organise open / closed member areas as well as a forum. (remark: discussion forums should be moderated because the forum host is responsible for the content and possible legal effects)

Meta data of data sets and products make the data accessible for the interdisciplinary usage and allows the user to search for specific data sets. Meta data should be created according to ISO standards, e.g.

ISO 19115 and fitted for the geodetic applications. Existing meta data catalogues might need conversion tables.

To open the Web portal for the large variety of geodetic services and data bases it is necessary to make use of Web services to allow the machine-to-machine communication through URLs. To realise the communication between the user and the clients (IAG services, databases) via the portal server standard protocols are needed to submit the required parameter sets. Proprietary formats must be avoided.
Also here it is recommended to use catalogues services. Catalogue services are required to support the discovery of registered network accessible resources within and between collaborating communities that seek to share information and processing resources efficiently. "Resources" includes not only data but also services, schemas, symbology libraries and other elements of Web based geoprocessing.
As an example the Open Geospatial Consortium (OGC) offers the OpenGIS Catalog Services Specification 2.0 which has been adopted by the OGC membership. This specification documents industry consensus on an open, standard interface that enables diverse but conformant applications to perform discovery, browse and query operations against distributed and potentially heterogeneous catalogue servers. It includes a number of improvements over the preceding version, version 1.1.1. Industry agreement on a common interface for publishing metadata and supporting discovery of geospatial data and services is an important step toward giving Web users and applications access to all types of geographic information and services.

Remark:
For further discussion more information about the networking of data centres and portals can be found e.g. by an article “Towards a New World Data Center System: Meeting Global Needs”
http://plato.wdcb.rssi.ru/wdc/reports/Moderinzation_ReportFinal_121203.doc
and NASA documentation http://gcmd.nasa.gov/Aboutus/gcmd_faq/about_portals.html .