

*Science in service of society*



**ICSU**  
WORLD DATA SYSTEM

# The IGS as a Member of ICSU World Data System

**Ruth E. Neilan**

**Member, WDS Scientific Committee**

**IGS 2012 Workshop**

**Olsztyn, Poland**

**July 23-27**





# Overview

***What is the relationship between ICSU and IGS?***

***What does IGS bring to the ICSU – WDS?***

***Does ICSU – WDS benefit IGS?***

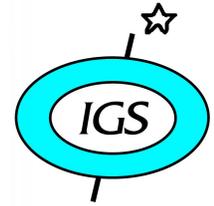


**ICCSU**

International Council for Science

**Strengthening international  
science for the benefit  
of society**

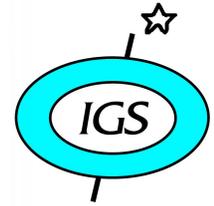
# International Council of Science – World Data System



The International Council for Science (ICSU) is a non-governmental organization with a global membership of national scientific bodies (120 Members, representing 140 countries) and International Scientific Unions (31 Members)

Founded 1931

# International Council of Science – World Data System



ICSU strategic planning in early 2000 identified the need for improved access to scientific data and information – a scientific data commons

In ~2004, ICSU conducted a review of its multi-disciplinary bodies, specifically those 3 involved with data and products:

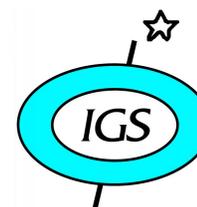
- Federation of Astronomical and Geophysical Data Analysis Services (FAGS)
  - IAG Services were members, IGS since 1994
- World Data Centers (WDC)
  - Both founded in mid-1950's
- CODATA



# WDS & CODATA: [codata.org](http://codata.org)

- ICSU Committee on Data for Science and Technology
- CODATA drafted GEO Data Policy
  - since adopted by GEO
- Note CODATA as keeper of conventions
  - Task Group on Fundamental Constants
    - Established 1969
  - e.g. Liaison member: BIPM
- CODATA International Conference 2012:
  - ‘Open Data and Information for a Changing Planet’
  - Taipei, 28-31 October

# WDS & CODATA GEO & GEOSS earthobservations.org



Home > GEOSS > GEO Data Sharing Principles Implementation

Home | About GEO & GEOSS ▾ | Communications ▾ | GEO Work Plan ▾ | GEO Community ▾ | Meetings & I  
Archive ▾ | Contact

## GEO Portal



## Products & Information

### INFRASTRUCTURE



Architecture

10010  
01011  
11010

Data  
Management

### INSTITUTIONS AND DEVELOPMENT

## GEO Data Sharing Principles Implementation

### The GEOSS Data Sharing Principles

One of the first accomplishments of the Group on Earth Observations was the acceptance of a set of high level Data Sharing Principles as a foundation for GEOSS. Ensuring that these principles are implemented in an effective yet flexible manner remains a major challenge. The **10-Year Implementation Plan** says "*The societal benefits of Earth observations cannot be achieved without data sharing*" and sets out the **GEOSS Data Sharing Principles**:

- There will be **full and open exchange** of data, metadata and products shared within GEOSS, recognizing relevant international instruments and national policies and legislation;
- All shared data, metadata and products will be made available with minimum time delay and at minimum cost;



## WDS creation

ICSU 29<sup>th</sup> General Assembly decision in Maputo (October 28, 2008):

***to establish a new ICSU-World Data System as an Interdisciplinary Body to replace the WDC and FAGS.***

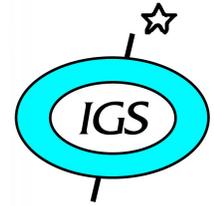




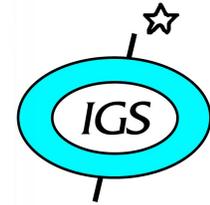
## WDS Objectives

- Enable **universal and equitable access** to quality-assured scientific data, data services, products and information;
- Ensure **long term data stewardship**;
- Foster compliance to agreed-upon **data standards and conventions**;
- Provide **mechanisms to facilitate and improve access** to data and data products.

# WDS Scientific Committee Terms of Reference



1. To ensure ....**long-term stewardship** and **provision of quality-assessed data and data services** to the international science community and other stakeholders;
2. to develop ...an **implementation plan** for the creation of the World Data System;
3. to define **agreed standards**, establish ...procedures for the **review and accreditation...**
4. to **monitor the geographic and disciplinary scope** of the system
5. to consider resource issues and provide guidance on funding mechanisms for facilities within WDS when appropriate;
6. to develop **close links and cooperation with CODATA.**



# WDS Data Policy

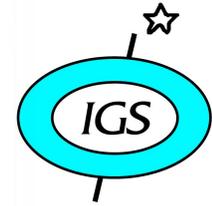


## WDS Data Policy

*The International Council for Science World Data System (ICSU WDS), recognizing the benefits and importance of contributing to the growing international efforts of data sharing, has adopted the same principles from GEO/GEOSS data sharing principles as follow:*

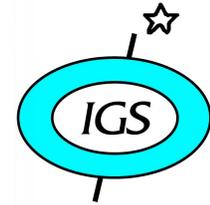
- **There will be full and open exchange of data, metadata and products shared within WDS, recognizing relevant international instruments and national policies and legislation;**
- **All shared data, metadata and products will be made available with minimum time delay and at minimum cost;**
- **All shared data, metadata and products being free of charge or no more than cost of reproduction will be encouraged for research and education.**

# Scientific Committee 2009-2012



Jean- Bernard Minster (Chair), *USA/France*  
Michael Diepenbroek, (Vice Chair) *Germany*  
David Clark, *USA*  
Francoise Genova, *France*  
Luiz Horta, *Brazil*  
Wim Hugo, *South Africa*  
Ruth Neilan, *USA*  
Lesley Rickards, *UK*  
Takashi Watanabe, *Japan*  
Baoping Yan, *China*  
Michael Zgurovsky, *Ukraine*  
Mustapha Mokrane, (ICSU ex officio, IPO)  
*New Committee in process of selection for 2012-2015*





# WDS Website

www.icsu-wds.org

Hosted in Kyiv, Ukraine

Home Organization WDS Members Services Outreach

“The new WDS will support ICSU’s mission and objectives, ensuring the long-term stewardship and provision of quality-assessed data and data services to the international science community and other stakeholders.”  
SCID Report 2008

**ICSU WORLD DATA SYSTEM**

**ICSU WDS Conference**  
Global Data for Global Science  
September 3-6, 2011  
Kyoto University, Kyoto, Japan

- Website
- Preliminary report

**WDS Feedback Survey**  
Please take this survey to provide feedback to the WDS Scientific Committee

Or send general comments to [icsuwds@gmail.com](mailto:icsuwds@gmail.com)

**News and Events**

- The First ICSU World Data System Conference “Global Data for Global Science”
- Fifth Scientific Committee Meeting

**Join ICSU WDS**  
Why join World Data System?  
Applications for membership are now open

**Criteria for Membership**  
Summary document available

© 2010, World Data System of International Council for Science  
Developed by World Data Center for geoinformatics and sustainable development

Home Organization WDS Members Services Outreach

WDS Members WDS Members WDS Activity monitor

**WDS Activity monitor**  
Activity monitor for World Data System — is an Information system, which provides the users with interactive access to information about each member of World Data System and includes classification system resources world database, monitors their status, has some developed mechanisms for analysis and visualization of the navigation possibility. Activity monitor is developed and supported by World Data Center for Geoinformatics and Sustainable Development.

**News and Events**

- The First ICSU World Data System Conference “Global Data for Global Science”
- Fifth Scientific Committee Meeting

**WDS Activity System**  
click on country to zoom

Offline Online

**COUNTRY**

All (23) AUSTRALIA(1) BELGIUM(2) CHINA (3) DENMARK(1) FRANCE(2) GERMANY (5) NETHERLANDS(1) RUSSIA(2) SWITZERLAND(1) TAIWAN(1) UKRAINE(2) USA (8)

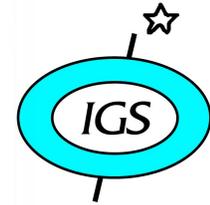
**TYPE**

All (23) Astronomy(1) Biodiversity(1) Cartography and Geodesy(1) Climate(1) Ecology(1) Geodesy and Geophysics(2) Geoinformatics and Sustainable Development(1) Geomagnetism(2) Glaciology(1) Laser Ranging(1) Marine Environmental Sciences(2) Marine Geology and Geophysics(1) Meteorology(1) Oceanography (2) Remotely Sensed Data(1) Renewable Resources and Environment(1) Rockets and Satellites(1) Seismology(1) Solis(1) Solar Terrestrial Physics(2) Space Science (2)

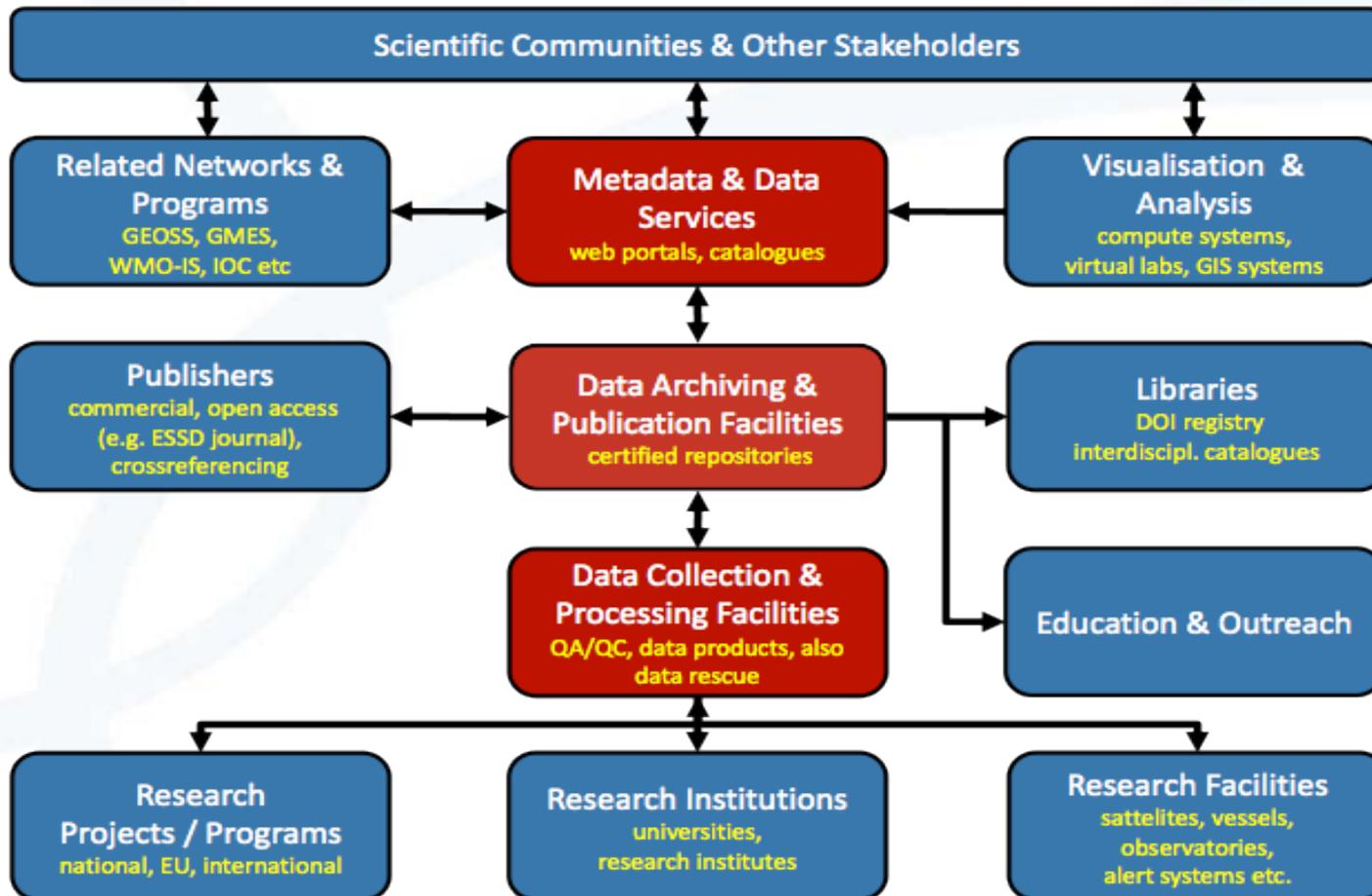
**LIST**

Member	Uptime	Status
Australian Antarctic Data Centre description   <a href="http://data.aad.gov.au">data.aad.gov.au</a>	97%	ONLine
Fish Database of Taiwan description   <a href="http://fishdb.sinica.edu.tw">fishdb.sinica.edu.tw</a>	0%	ONLine
Flanders Marine Institute, Data Centre	100%	ONLine

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Developed by World Data Center for geoinformatics and sustainable development

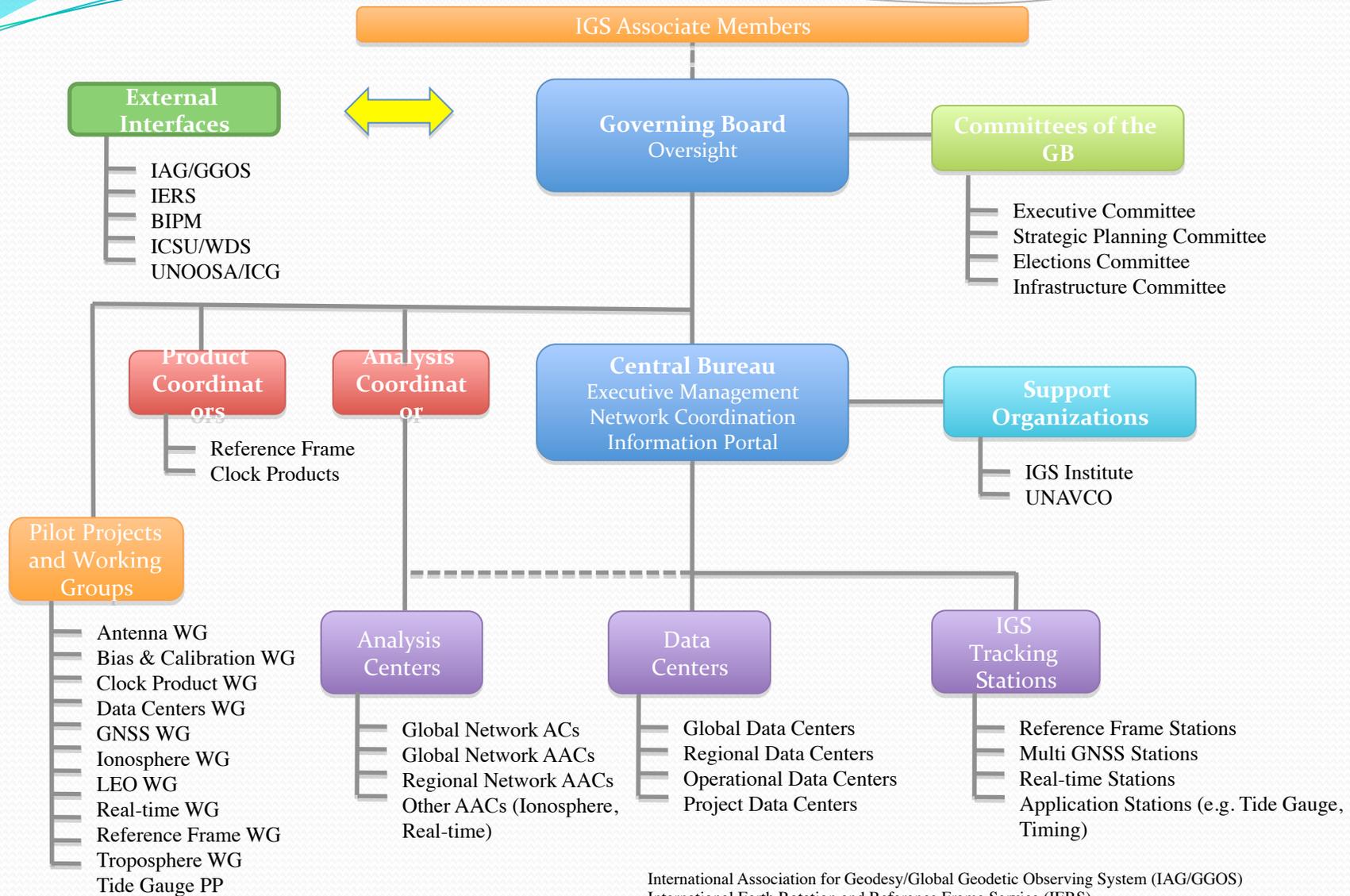


# Structure & Architecture



WDS functional structure. "Metadata & Data Services" include WDS supplied data analysis services. Red boxes show the core functions of WDS, blue boxes contain the various relationships.

# One node? ... Or many?



International Association for Geodesy/Global Geodetic Observing System (IAG/GGOS)  
 International Earth Rotation and Reference Frame Service (IERS)  
 Bureau International des Poids et Mesures (BIPM)  
 International Council for Science/World Data Systems (ICSU/WDS)  
 United Nations Office for Outer Space Affairs/International Committee on GNSS (UNOOSA/ICG)  
 Analysis Center (AC)  
 Associate Analysis Center (AAC)

# “System of data systems”

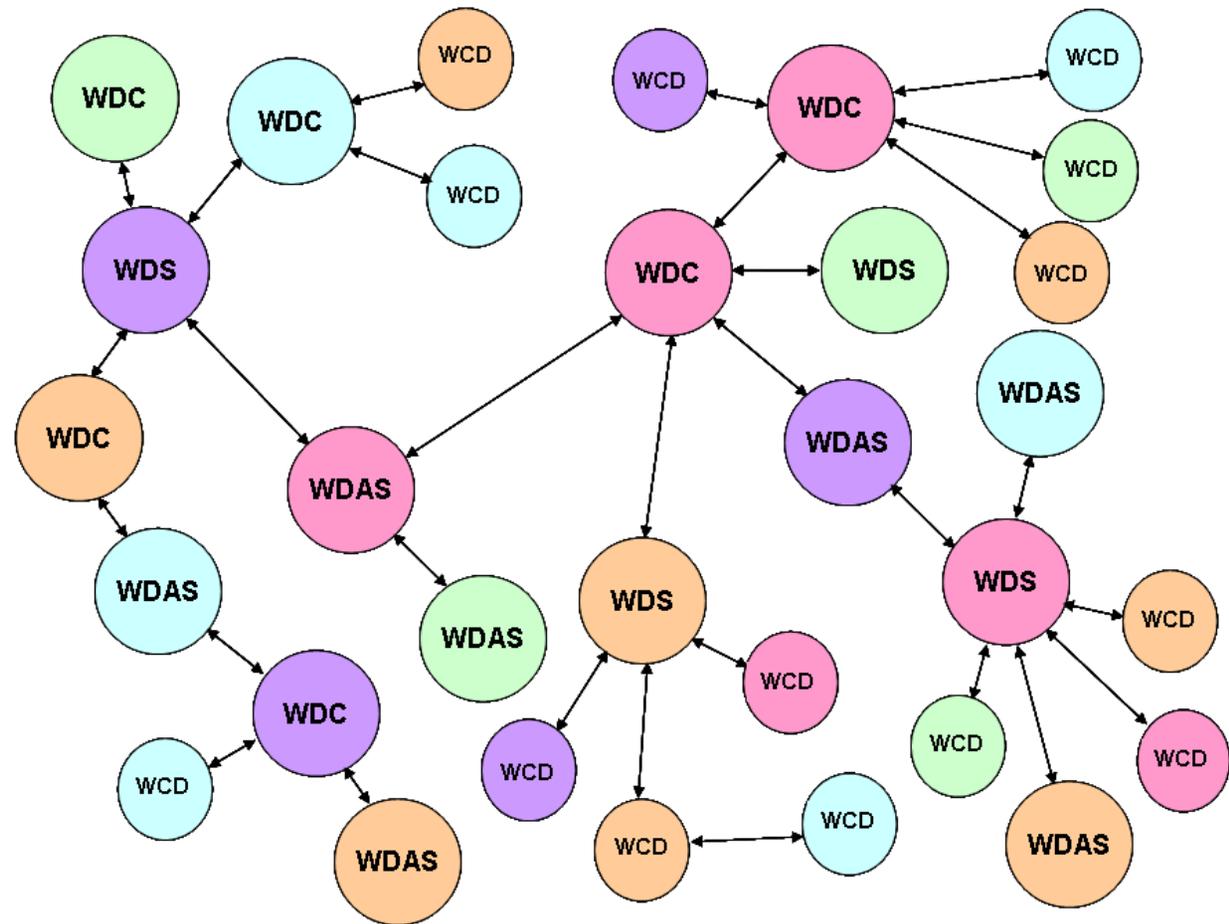
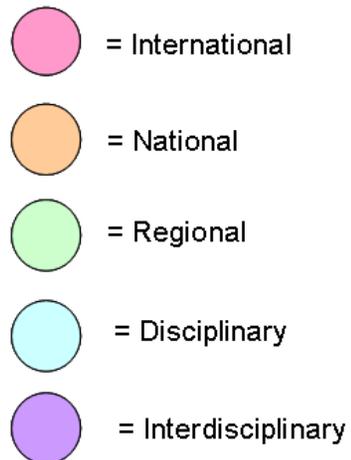
## Parallel concept to GEOSS

WDC = World Data Center

WDS = World Data Service

WDAS = World Data Analysis Service

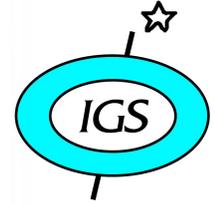
WCD = World Center for Data



Illustrative example of the interoperability between the components of a GDSS

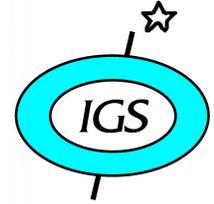
# WDS - a "system of data systems"

- ...of data archive centres, data analysis centres, data producers, data developers, data observing systems and networks, virtual observatories, etc., both regional (including national) and global
- Membership criteria inclusive of this concept
- Some may need to be more general than current ones
- Tough concept to address until WDS is fully developed...



# WDS Membership

- Application
- Critical Review
- Role of Services, IAG, GGOS, IUGG, IAU, URSI, other UNIONS
  - Evolving role and
- Responsibilities



## WDS Membership types

- **Regular members:** Data curation and data analysis services.
- **Network members:** Groups of regular members, Umbrella organizations
- **Partner members:** Do not deal directly with data collection, curation, and distribution
- **Associate members:** Organizations interested in the WDS endeavor



# WDS Membership criteria

- **Transparent and objective** base for the
  1. **Evaluation**
  2. **Accreditation**
  3. **Assessment**
- **Trustworthiness** in terms of
  1. **Authenticity**
  2. **Integrity**
  3. **Confidentiality**
  4. **Availability**



# WDS Membership criteria

Four categories of criteria for regular members:

1. General requirements and policies
2. Organizational framework
3. Management of data, products and services
4. Technical infrastructure

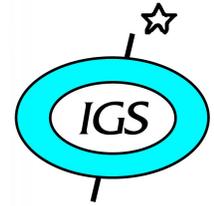


# WDS Membership status

## 35 accredited WDS Members

- Over 146 Expressions of Interest
- 58 applications for membership
- 35 regular members
- 1 network member
- 1 partner member
- 2 associate members
- 11 applications discouraged

# International Programme Office (IPO)

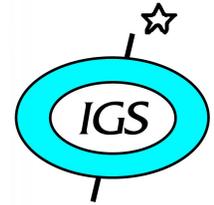


The International Programme Office (IPO) is responsible for **implementing the decisions of the Scientific Committee** and day-to-day tasks of **coordinating the ICSU WDS activities.**

*Strong similarity to*

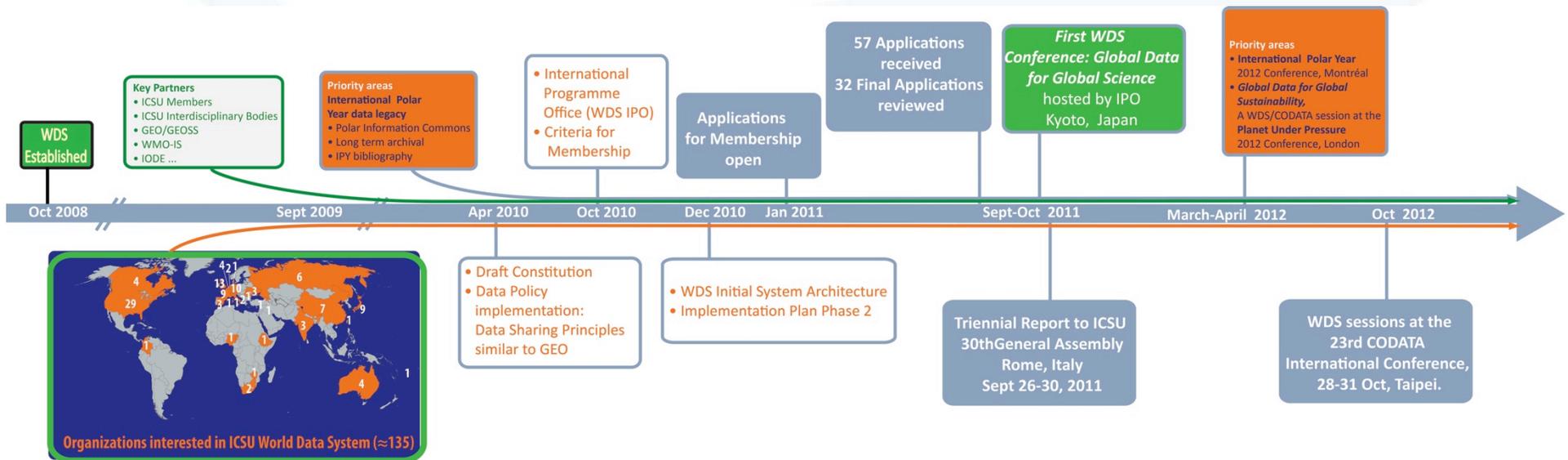
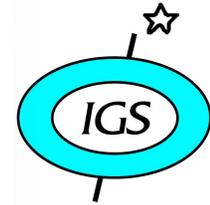
Relationship between IGS CB and the IGS  
Governing Board

# Programme Office (IPO)



- Approved by ICSU EB, *April 2010*
- NICT proposal accepted, *November 2010*
- Letter of agreement signed, *July 2011*  
**IPO hosted by NICT in Tokyo, Japan**
- IPO Executive Director, *March 5 2012*
- **Opening Ceremony**, *April 19, 2012*
- IPO staffing in place, *2012*

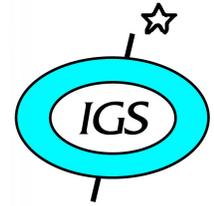
# Where we are... and where we are going





# WDS & IGS

- IGS benefits:
  - ICSU level accredited
  - Visibility and recognition as a model of international community cooperation as a scientific service
  - Partnerships with global data services
    - Best practices on data issues
  - Emphasis on data sharing principles – **open data**
    - Promoted at highest levels of national policies
- ICSU - WDS Benefits from IGS
  - Engaged participation of IUGG association
    - IAG/GGOS/IGS
  - Rich experience of IGS evolution as an organization,



**DZIĘKUJĘ! THANK-YOU!**