WORLD METEOROLOGICAL ORGANIZATION

Weather – Climate - Water

WMO Information System (WIS)

Managing & Moving
Weather, Water and Climate Information
in the 21st Century

Working-Level Brainstorming Session on Meteorological Services to Support Humanitarian Response
17 April 2009

David Thomas (PM-WIS)

Meteorological Services to Support Humanitarian Response

- What is WIS and why is WMO going this way?

- What is happening to the GTS?

- Benefits of WIS principles?
  - Service Oriented Architecture, search, metadata, maintenance of web sites

- How does WIS relate to UN agencies?

- What is the time frame of WIS?

WMO Objectives

- To produce more accurate, timely and reliable forecasts and warnings of weather, climate, water and related environmental elements;

- To improve the delivery of weather, climate, water and related environmental information and services to the public, governments and other users;

- To provide scientific and technical expertise and advice in support of policy- and decision-making and implementation of the agreed international development goals and multilateral agreements.

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WMO Strategic Plan

3 Top-level Objectives

5 Strategic Thrusts

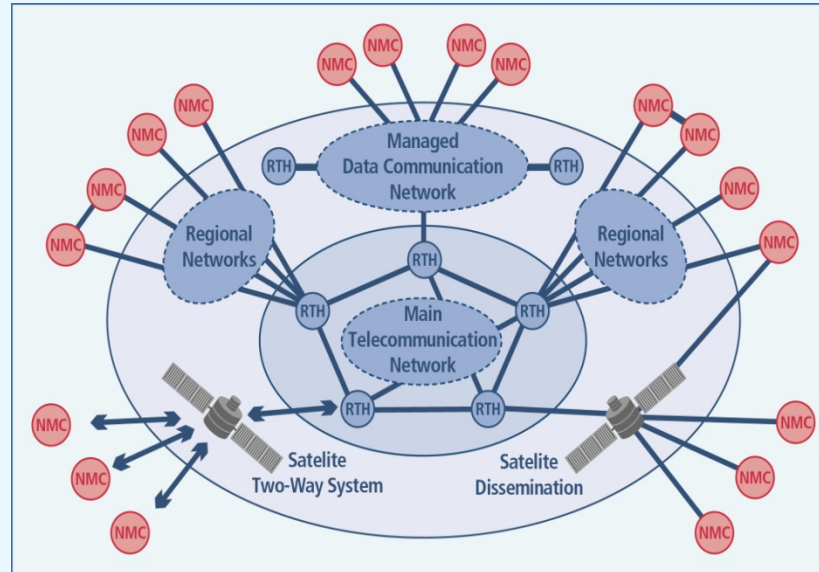| 3 Top-level Objectives	5 Strategic Thrusts	11 ER
To produce more accurate, timely and reliable forecasts and warnings of weather, climate, water, and related environmental elements	**Science and Technology Development and Implementation**	1. Enhanced capabilities of Members to produce better **weather** forecasts and warnings
		2. Enhanced capabilities of Members to provide better **climate** predictions and assessments
		3. Enhanced capabilities of Members to provide better **hydrological** forecasts and assessments
		4. Integration of WMO **observing systems**
		5. Development and implementation of the new WMO **Information System**
To improve the delivery of weather, climate, water, and related environmental information and services to the public, governments and other users	**Service Delivery**	6. Enhanced capabilities of Members in multi-hazard **early warning and disaster prevention and preparedness**
		7. Enhanced capabilities of Members to provide and use weather, climate, water and environmental applications and **services**
	Partnership	8. Broader use of weather, climate and water outputs for **decision-making** and implementation by Members and **partner** organizations
To provide scientific and technical expertise and advice in support of policy and decision-making and implementation of the agreed international development goals and multilateral agreements	**Capacity-building**	9. Enhanced capabilities of NMHSs in **developing countries, particularly least developed countries**, to fulfil their mandates
	Efficient Management and good Governance	10. Effective and efficient functioning of constituent bodies
		11. Effective and efficient management performance and oversight of the Organization

Next Strategic Plan may see less ER with ER 4 and 5 merged

Current situation: GTS

WWW GTS

Private Met Svc's

WDC & Centres of Excellence

Internet

Managed Data Communication Network

RTH

Regional Networks

Regional Networks

RTH

RTH

Main Telecommunication Network

RTH RTH

NMC

Satelite Two-Way System

Satelite Dissemination

WDC & Centres of Excellence

Research, Uni & Private

The GTS has evolved to continue to meet its primary role

Communications & connectivity based.

• Incorporates and takes advantage of new technologies

• Effective and efficient

• Has grown through bi-lateral links – many for satellite or NWP data

• All WMO members are better off because of it.

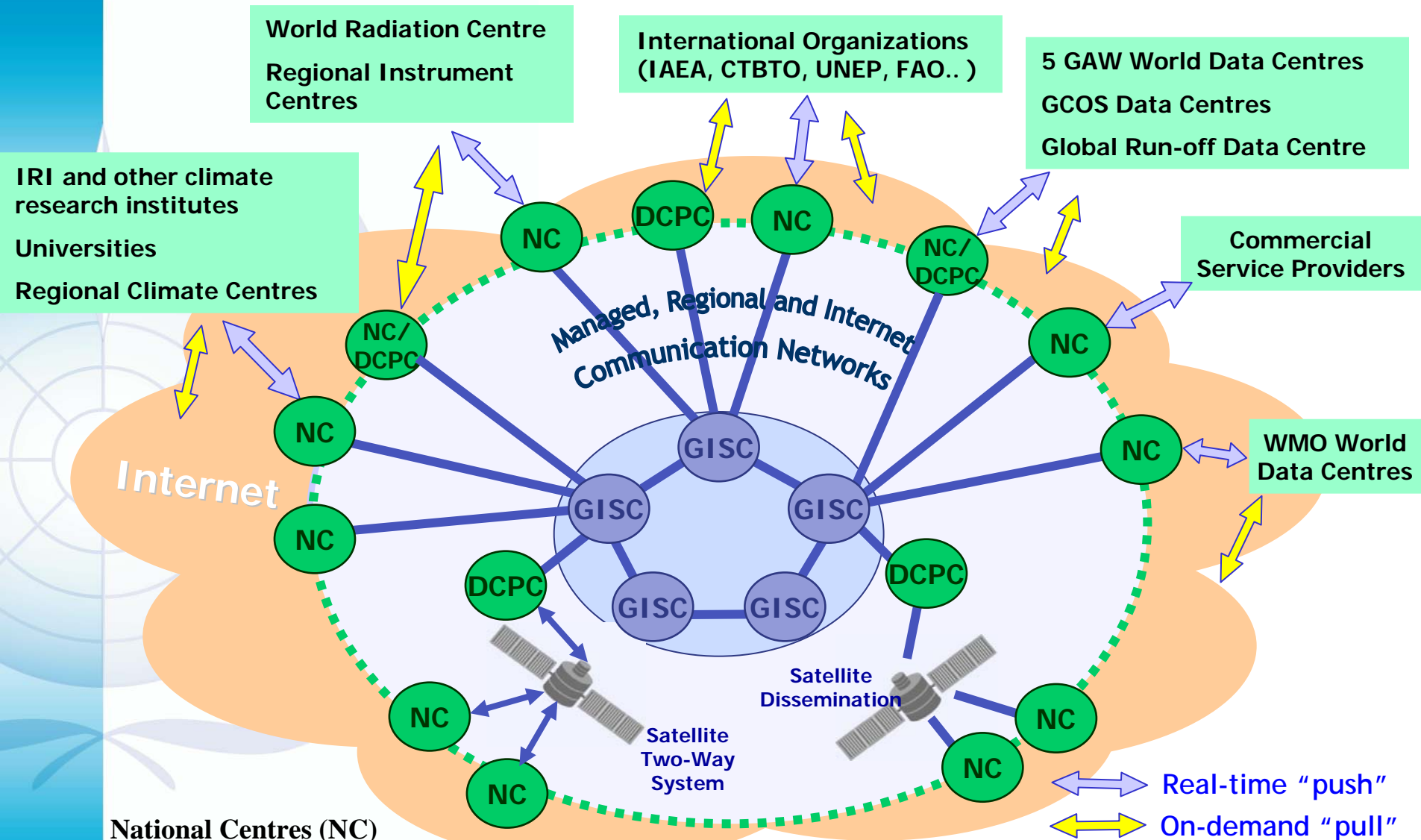• But it does not meet all needs of WMO members

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Goals of WIS

- GTS needs to be open to all WMO activities to provide time critical information exchange
- Internet should be a part of WIS to allow support of less critical requirements
- The continuous improvement and adaptation of new technologies in the GTS should be maintained.
- The WIS should be open to more than just WMO programs allowing partners to participate
- Need seamless discovery, access and retrieval (DAR) across all WMO systems, including collaborators and partners.

WIS is in two parts

- ## Part A
  - Continuous improvement of the GTS
  - Opening up GTS to all WMO programmes
  - Distribution of time or operationally critical information, including a priority virtual warning network

- ## Part B
  - New functionality of WIS
  - Discovery, access & retrieval
  - Better use of the internet for less time or operationally critical information and for large files

WMO Information System (WIS)

World Radiation Centre

Regional Instrument Centres

International Organizations (IAEA, CTBTO, UNEP, FAO..)

5 GAW World Data Centres

GCOS Data Centres

Global Run-off Data Centre

IRI and other climate research institutes

Universities

Regional Climate Centres

Commercial Service Providers

Managed, Regional and Internet Communication Networks

Internet

NC

DCPC

NC

NC/DCPC

NC/DCPC

NC

GISC

GISC

GISC

GISC

GISC

NC

NC

NC

DCPC

DCPC

NC

NC

NC

NC

WMO World Data Centres

Satellite Two-Way System

Satellite Dissemination

Real-time "push"

On-demand "pull"

National Centres (NC)

Global Information System Centres (GISC)

Data Collection and Production Centres (DCPC)

Data communication network

World Meteorological Organization

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GISC – DAR service

Search Request

marine warnings in area bounded by 40W to 10W and 45N to 70N
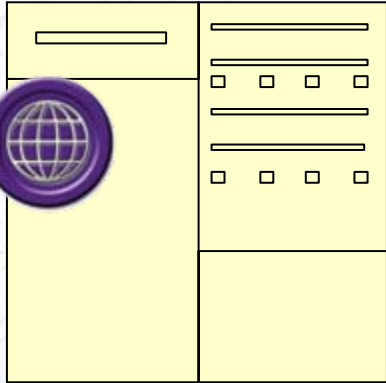
Search Results

User searches for metadata then retrieves information from data custodian

Information request to custodian
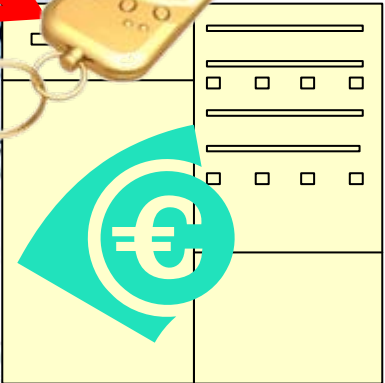
http://weather.gmdss.org/1.html

Retrieve information
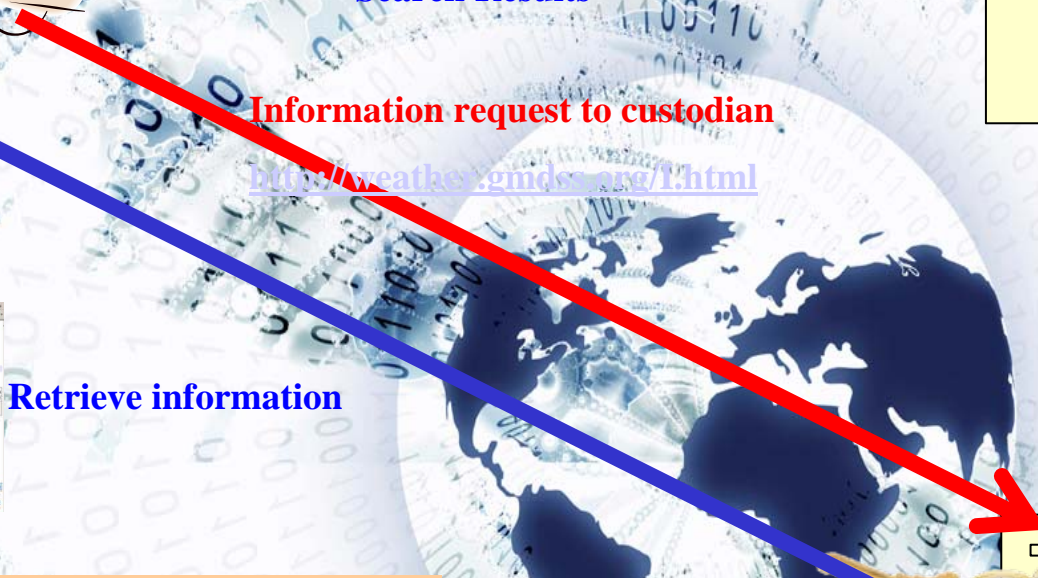
Centre publishes metadata to GISC DAR catalogue

Security/authentication/authorization and even charging is managed by each service provider

NC/DCPC information access service

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Key activity milestones

- **Consolidate WIS plans**: done
- **Develop regulatory documents**: done
  - WIS technical compliance standards (drafted)
    - Interfaces compliant with GEOSS 10 year plan
    - Ditto, for INSPIRE & GMES
  - User requirements being documented (drafted)
  - Functional architecture documented (drafted)
- **WIS guidelines and manuals**: up to 2011 and beyond
  - Outline under draft with Guidelines on WIS due 2009
  - Other manuals to follow (coordinated with WIGOS) => 2015
- **Cont Improvement of GTS capability**: Ongoing

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Key activity milestones (cont)

- **Development of metadata standard**: done
  - WMO profile of ISO19115
  - Basically an implementers guide (Ver 2 due Feb 2011)
- **Implement first operational GISC**: 2009
  - European VGISC (Germany, France & UK)
    - Aiming for a GISC by end of 2009
    - DCPC partners are ECMWF, EUMETSAT, Norway
  - 13 countries planning GISCs (including above) by 2011
- **Implement DCPCs**: 2008-2011
  - So far 0ver 90 DCPCs identified

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Summary

- What is WIS and why is WMO going this way?
  - WIS is necessary to ensure all WMO information is available to all WMO users and to ensure long term sustainability of all WMO information systems.

- What is happening to the GTS?
  - The GTS remains as an integral part of WIS and will continue to be improved as well as being made available to all WMO programs for the sharing of operational and time critical information.

- Benefits of WIS principles?
  - SOA – scalable, flexible, allows interoperability to be focused at the interfaces.
  - DAR – utilizes ISO23950 search and ISO19115 metadata standards providing interoperability between WMO and non WMO system
    - What is available and what can I ask for?
    - These standards are multi lingual
  - Metadata can be used to simplify maintenance of web sites

Summary (cont)

- How does WIS relate to UN agencies?
  - Using the WIS principles can make your own systems interoperable.
  - Easier establishment and maintenance of Preparedness information systems
  - DAR provides power users in real-time events ability to find and access information quickly.
  - WIS can connects you to PWS and GDPFS information streams as well as agriculture, climate and water (ocean and land)
    - This includes access to seasonal and climate outlooks
  - Allows for inclusion of GIS technological solutions such as WMS/WFS etc
    - This is being used increasingly by Members to support EM
    - As noted, maps are worth many words
  - Similarly for adoption of new standards in EM such as Common Alert Protocol
  - Can use real-time or canned data for modeling and training

- What is the time frame?
  - WIS is now in its implementation stage and we expect the first GISC online by the end of this year. Once a WIS catalogue is up and running, Members can start to register products and services.
  - Most time critical operations and many countries should be fully WIS compliant by 2011. Remaining countries and less critical components by 2015.

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Essential Reading

- WIS Project & Implementation Plan (WPIP)
- WIS Functional Architecture
- WIS Compliance specifications for GISC, DCPC & NC

Under development

- WIS Rolling Review of requirements (RRR)
- Guidelines on WIS
- WIS web page http://www.wmo.int/wis

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