WORLD METEOROLOGICAL ORGANIZATION

Weather – Climate - Water

WMO Information System (WIS)

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

Report to Workshop on QA4EO

29th Sep-1st Oct 2009

Presented by

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WMO OMM

QA4EO

- What is WIS and why is WMO going this way?
- What is happening to the GTS?
- How does WIS relate to GEOSS?
- How does WIS relate to QA4EO?
- Will WIS lead to changes in QA4EO plans and priorities?
- What is the time frame of WIS?

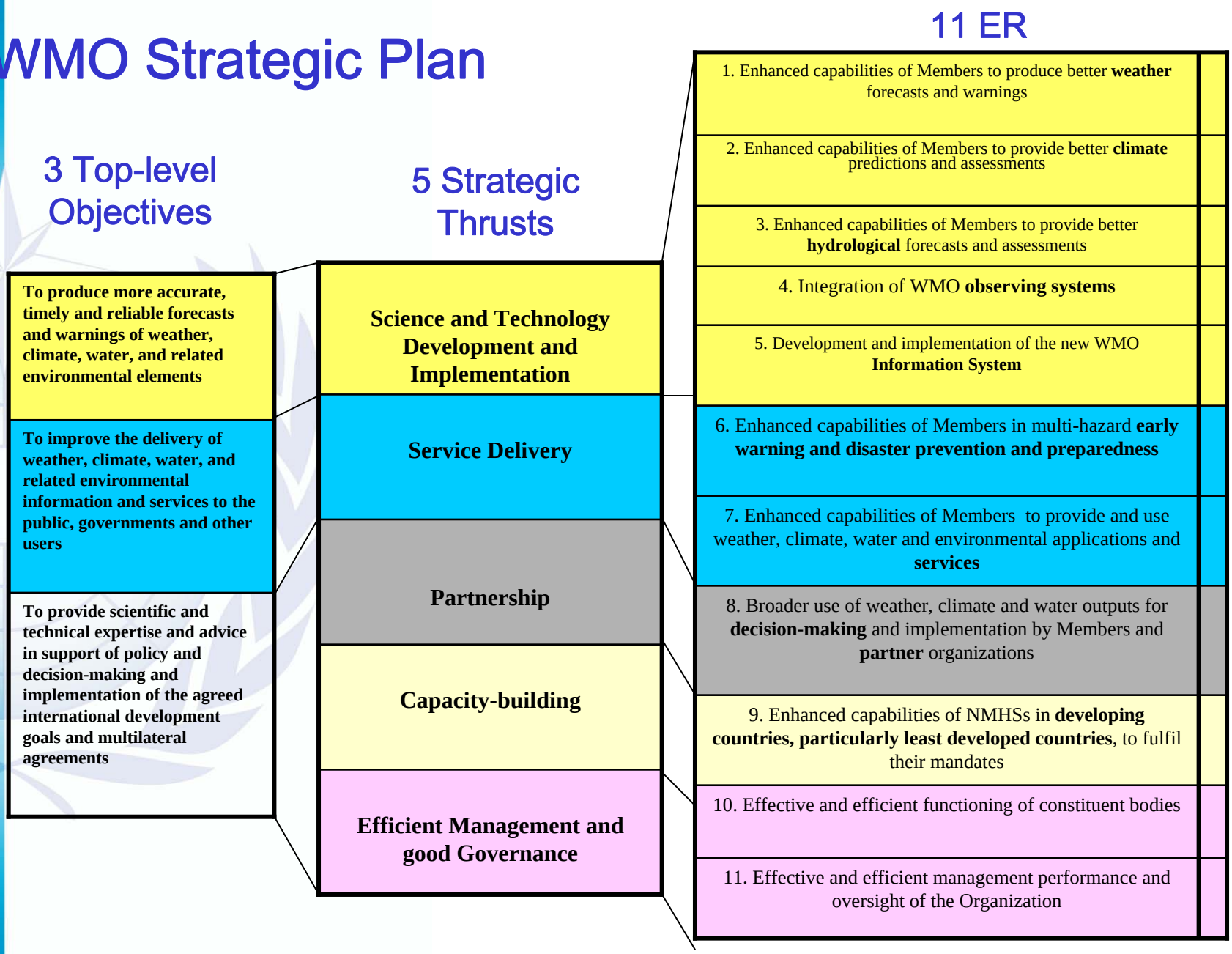
WMO Objectives

WMO aims to reduce the risk of natural disasters, while supporting economic and life quality, and looking after our environment in a sustainable way. Our objectives are

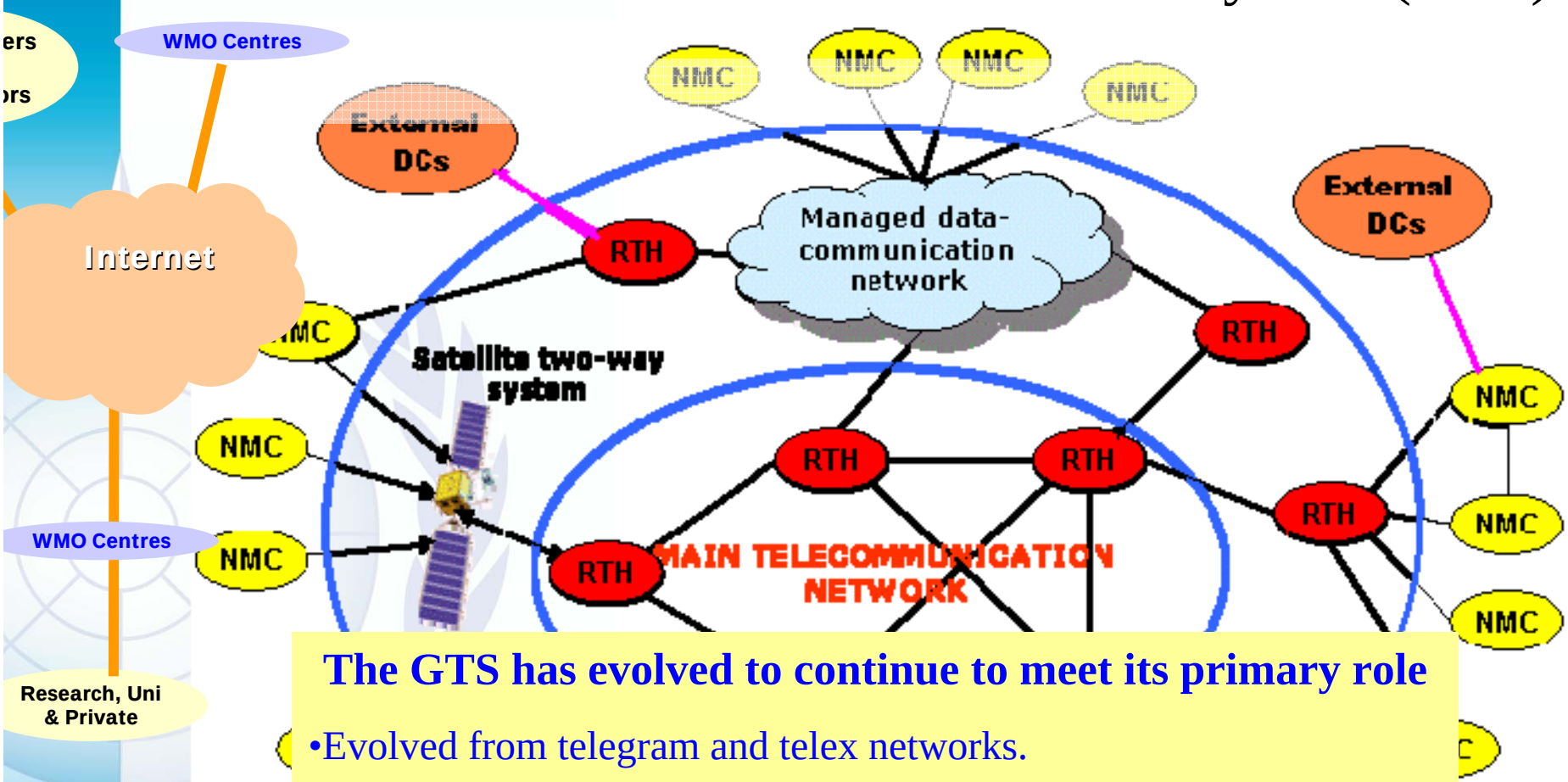
- To produce more accurate, timely and reliable forecasts and warnings of weather, climate, water and related environmental elements;
- To improve the delivery of weather, climate, water and related environmental information and services to the public, governments and other users;
- To provide scientific and technical expertise and advice in support of policy- and decision-making and implementation of the agreed international development goals and multilateral agreements.

WMO
OMM

WMO Strategic Plan



The Global telecommunication System (GTS)



The GTS has evolved to continue to meet its primary role

- Evolved from telegram and telex networks.
- 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

RTH- regic

NMC –nati

DC – Data

WMO OMM

Goals of WIS

- GTS needs to be open to all WMO activities to provide operational critical and time critical information exchange
- Internet should be a part of WIS to allow support of less critical or high volume requirements [1]
- 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.

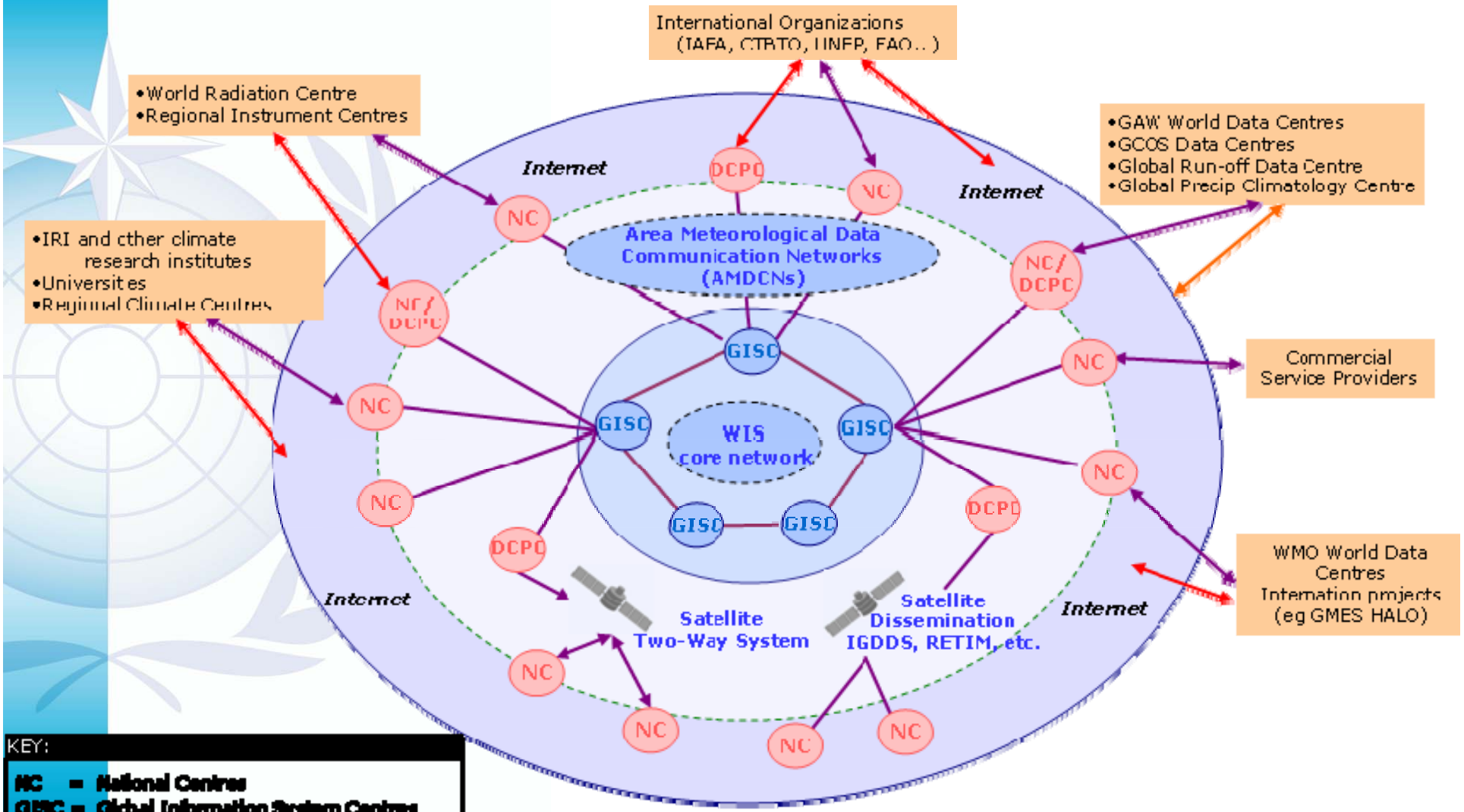
[1] e.g. GTS ~2GB per day compared with TIGGE ~200GB per day

Virtual Structure of WIS

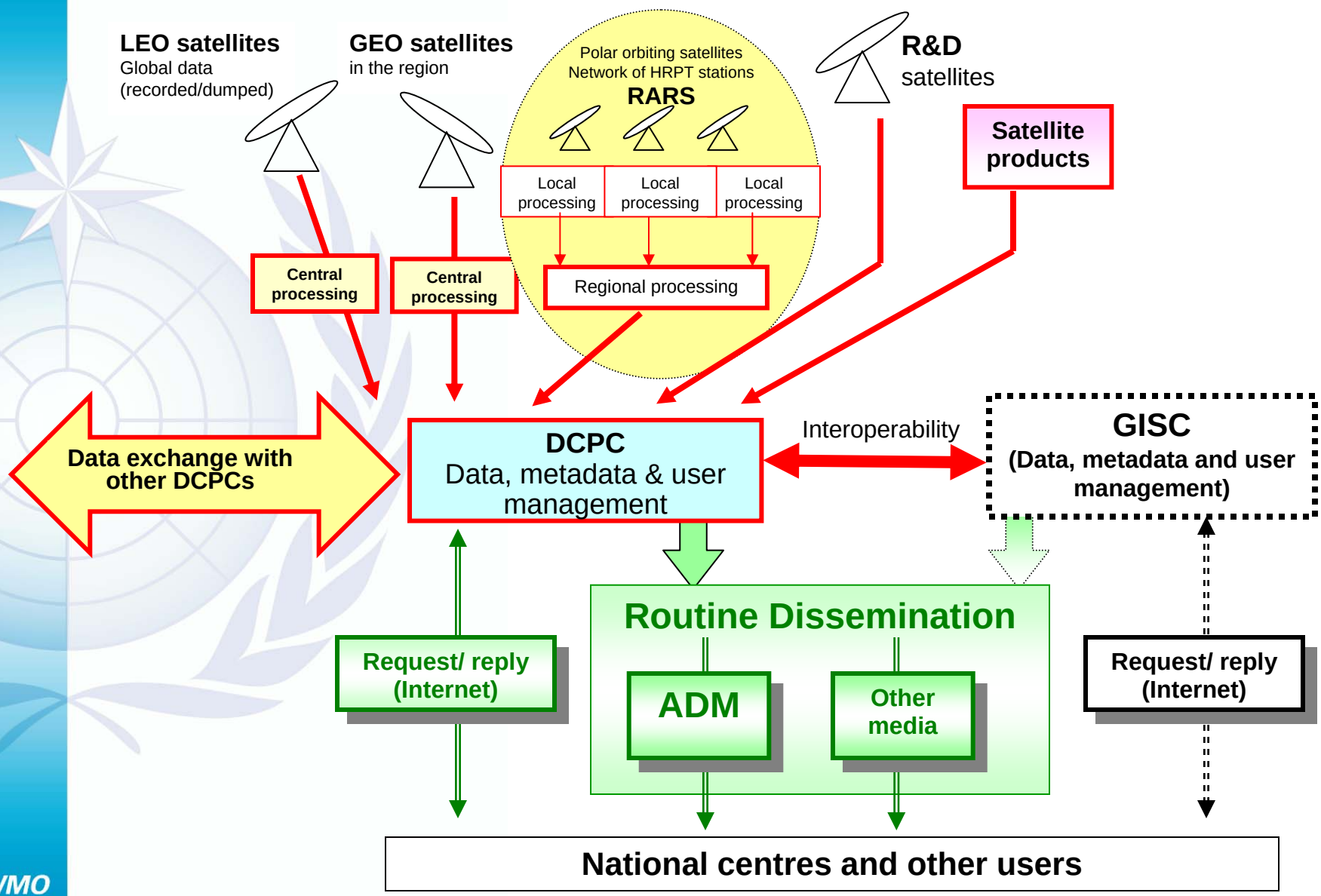
- National Centres (NC)
  - –Collect and/or produce national information
- Data Collection or Production Centres (DCPC)
  - –Collect and/or produce regional or international information or are comm's hub
- Global Information System Centres (GISC)
  - – Hold WMO metadata catalogue, 24hr cache of all GTS data , and act as core comm's hub
- Data communication network
  - –GTS, satellite two way and dist systems, internet, etc

The names of these centres describe their functionality, not the actual organisational entities. There may be organisations, such as NMHSs, which combine all three centres within one facility.

WMO Information System (WIS)



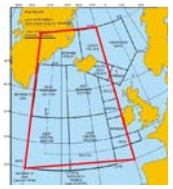
IGDDS within the WIS



Requirements of WIS

- GTS is private wide area network so compliance is rigorous and extensive
  - See manual on GTS[1]
- Interoperability uses SOA, so only interfaces need to comply, especially
  - Metadata iso19115 and iso19139 (xml rep) [2]
  - Unique identifiers and file names (manual on GTS[1])
  - Search iso23950 (but have gateway to CSW)
- Many benefits from GTS data mgt
  - Codes and data representation (very efficient)
  - Encouraged but not essential

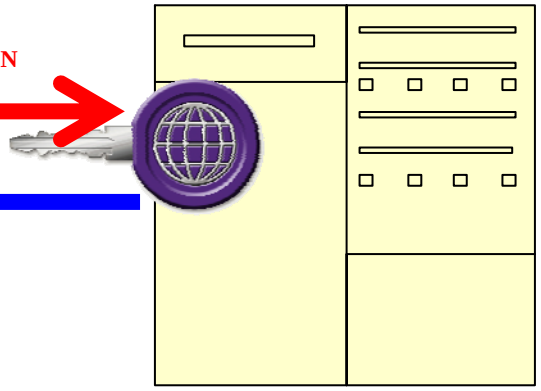
[1] go to html//:www.wmo.int/wis and select manuals and guides
[2] go to html//:wis.wmo.int for metadata profile



GISC – DAR service

Search Request

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



Search Results

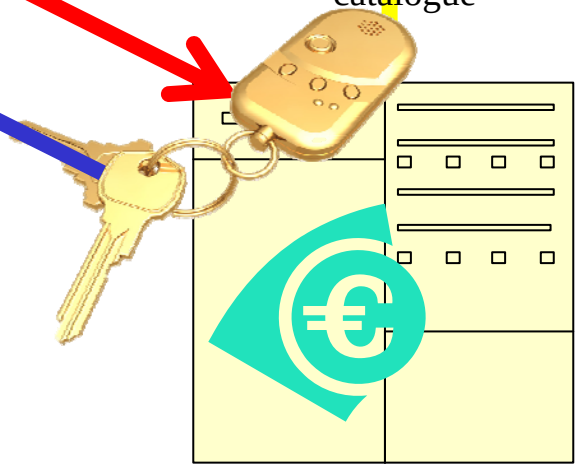
User searches for metadata then retrieves information from data custodian

Information request to custodian

http://weather.gmdss.org/I.html

Centre publishes metadata to GISC DAR catalogue

Retrieve information



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

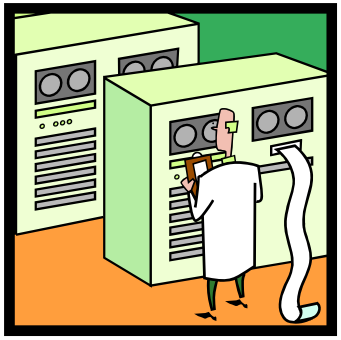
NC/DCPC information access service

New Output

Critical Areas

Approve OBS

Forecasters



New Output

Model output

Metadata

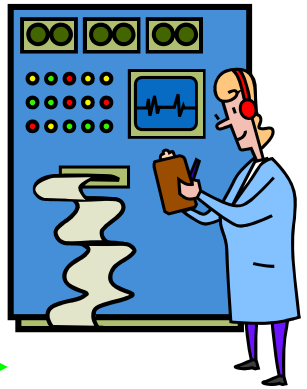
GIFS

Request OBS

Metadata

Observations

Supply OBS



GDPFS

WIGOS OBS
Program

WIS Implementation

- Is proceeding in two parallel parts
- Part A
  - Ongoing support and improvement of existing GTS components and data mgt, including using internet more,
  - Opening up GTS to all WMO programmes
- Part B
  - The new functionality of WIS, in particular Discovery, Access and Retrieval (DAR).
  - Allowing partners and contributors to access WIS
  - In this, WIS is an exemplar task in GEOSS

Key activity milestones

- **Consolidate WIS plans**: Done
- **Develop regulatory documents**: Done
  - WIS technical compliance standards
    - Interfaces compliant with GEOSS 10 year plan
    - Ditto, for INSPIRE & GMES
  - User requirements being documented
  - Functional architecture documented
- **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

Key activity milestones (cont)

- **Development of metadata standard**: Done (see wis.wmo.int)
  - WMO profile of ISO19115
  - Basically an implementers guide + codelist
- **Implement first operational GISC**: 2009
  - 13 countries offering GISCs. Several due 2010
  - See www.wmo.int/wis
- **Implement other operational GISCs**: 2009 - 2011
  - Some countries still seeking internal approval before making commitment
- **Implement DCPCs**: 2008-2011
  - About 110 DCPCs from about 40 countries have been identified
  - Several centres just waiting for GISC to upload metadata to catalogue
- **CBS** has set up an expert team to establish demonstration process due for publishing end of Nov 2009.
  - Expect formal endorsement of centres at WMO Congress 2011

QA4EO

- 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.
- How does WIS relate to GEOSS?
  - WIS is a contributing system to GEOSS
  - WIS is an exemplar system of the interoperability principles adopted by WIS and GEOSS. - AR-09-2b (AR-07-04)

QA4EO

- How does WIS relate to QA4EO?
  - Metadata standards – ISO-19115 and 19139
  - Search standards – ISO-23950
  - Unique identifiers and file names
- Will WIS lead to changes in QA4EO plans and priorities?
  - QA4EO has committed to ISO19115 but have not seen evidence of xml or search standard
  - Based on discussions yesterday, now is a good time to address WIS issues.
- What is the time frame of WIS?
  - Part A is operational. Part B will come online with the first GISC in 2010. Everybody should be finished by 2015

Further Reading

- See ‘reference docs’ under **www.wmo.int/wis**
- WIS Project & Implementation Plan (WPIP)
- WIS Functional Architecture
- WIS Compliance specifications for GISC, DCPC & NCWIS Rolling Review of requirements (RRR)

Under development

- Guidelines on WIS