Real Time and archived data synergies: toward WIGOS for the ocean observation components

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Summary

- The European marine data streams, real time and delayed mode
- The WIGOS system
- The JCOMM organization
- Suggestion for way forward

The European marine data flows: Delayed Mode data flow

EEA-WISE Marine /EIONET

SEADATANET/I ODE-ODP

JRC/ Data Collection Framework for Fisheries

Regional Conventions (UNEP/MAP, OSPAR, HELCOM)

EMODNET

PROBLEMS: Interoperability very limited

Delayed Mode data flow: main users

- Good Marine Environmental Status Assessment Agencies (EEA, National, etc.)
- Fisheries
- Science/Research/Innovation (Climate etc.)
- Ocean Forecasting Centers for re-analysis
- Environmental Impact and risk consultancy
- Offshore industry (coastal construction engineering, traditional and renewable energy, etc.)
- …..

The European marine data flows: Real Time data flow

National coastal systems (comprehensive of tide gauges)

MyOcean/TAC system

EuroGOOS/ROOSEs

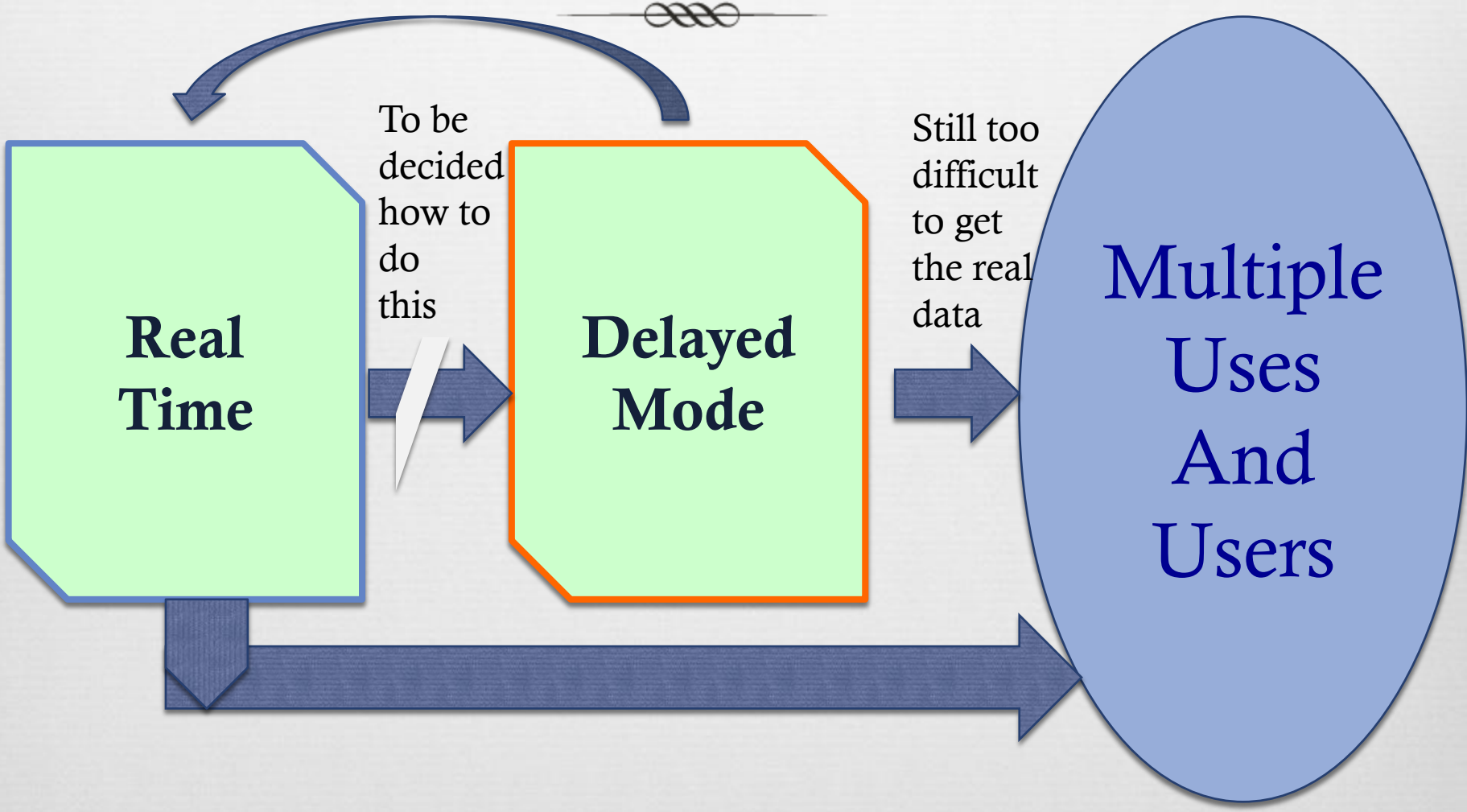
GTS WMO data

PROBLEMS:
Data Telemetry still very limited
Data Assembly Centers should be very distributed but harmonized

Real Time data Users

- Ocean Forecasting Centers
- Emergency management at sea
- Maritime transport
- Coastal flooding early warning systems
- Tsunamis warning systems
- Meteorological Offices
- Science
- ….

The two ‘data streams’ relationship



The problems for both RT and DM data

- Data Telemetry still very limited (need for an improved ARGOS system, ORBCOMM or Iridium)
- Data Assembly Centers do not agree on a unique standard and protocols to archive the data (from real time and data rescue activities)
- Still little interoperability between ocean observations and Marine Meteorological Observations within WWW system

WIGOS: WMO Global Observing System

- WIGOS will be an integrated, comprehensive, and coordinated system primarily comprising the surface-based and space-based observing components of the GOS, GAW, GCW, and WHYCOS, plus all WMO contributions to GCOS, GOOS and GTOS.
- It should be noted that in contrast to the primarily NMHS owned observing systems upon which the WWW was built, the proposed WIGOS component observing systems are owned and operated by a diverse array of organizations, both research and operational.
- In particular, strengthening the interaction between research and operational observing communities is important for sustaining and evolving observing systems and practices, in line with new science and technology outcomes

WIGOS list of observations

- Surface synoptic stations (Land and Sea stations);
- Upper-air synoptic stations;
- Aircraft meteorological stations;
- Aeronautical meteorological stations;
- Research and special-purpose vessel stations;
- Climatological stations;
- GCOS Surface Network (GSN);

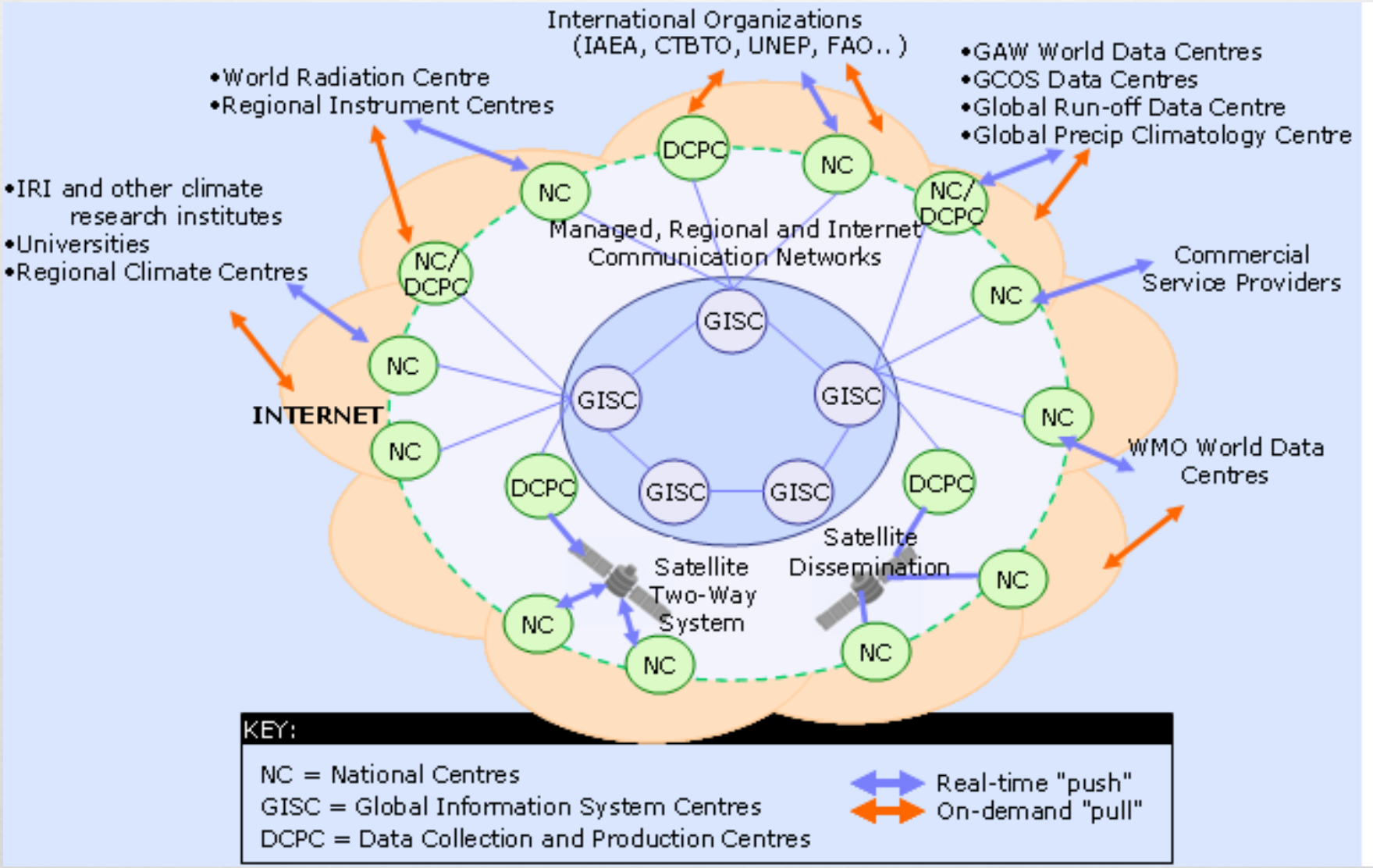
WIGOS list of observations

- Agricultural meteorological stations;
- Hydrological stations;
- Special stations, that include:
- Weather radar stations;
- Radiation stations;
- Wind profiler stations;
- Atmospherics detection stations (lightning detection network stations);
- Micrometeorological flux stations;
- Plant phenology observation stations;

WIGOS list of observations

- Meteorological rocket stations;
- Global Atmosphere Watch (GAW) stations;
- Global Cryosphere Watch stations;
- Planetary boundary-layer stations;
- Data buoys (drifting and moored) and ocean surface gliders;
- Ocean profiling floats and sub-surface gliders;
- Ship-based observations (surface marine, oceanographic, and upper-air);
- Tide-gauge stations; and
- Tsunami monitoring stations.

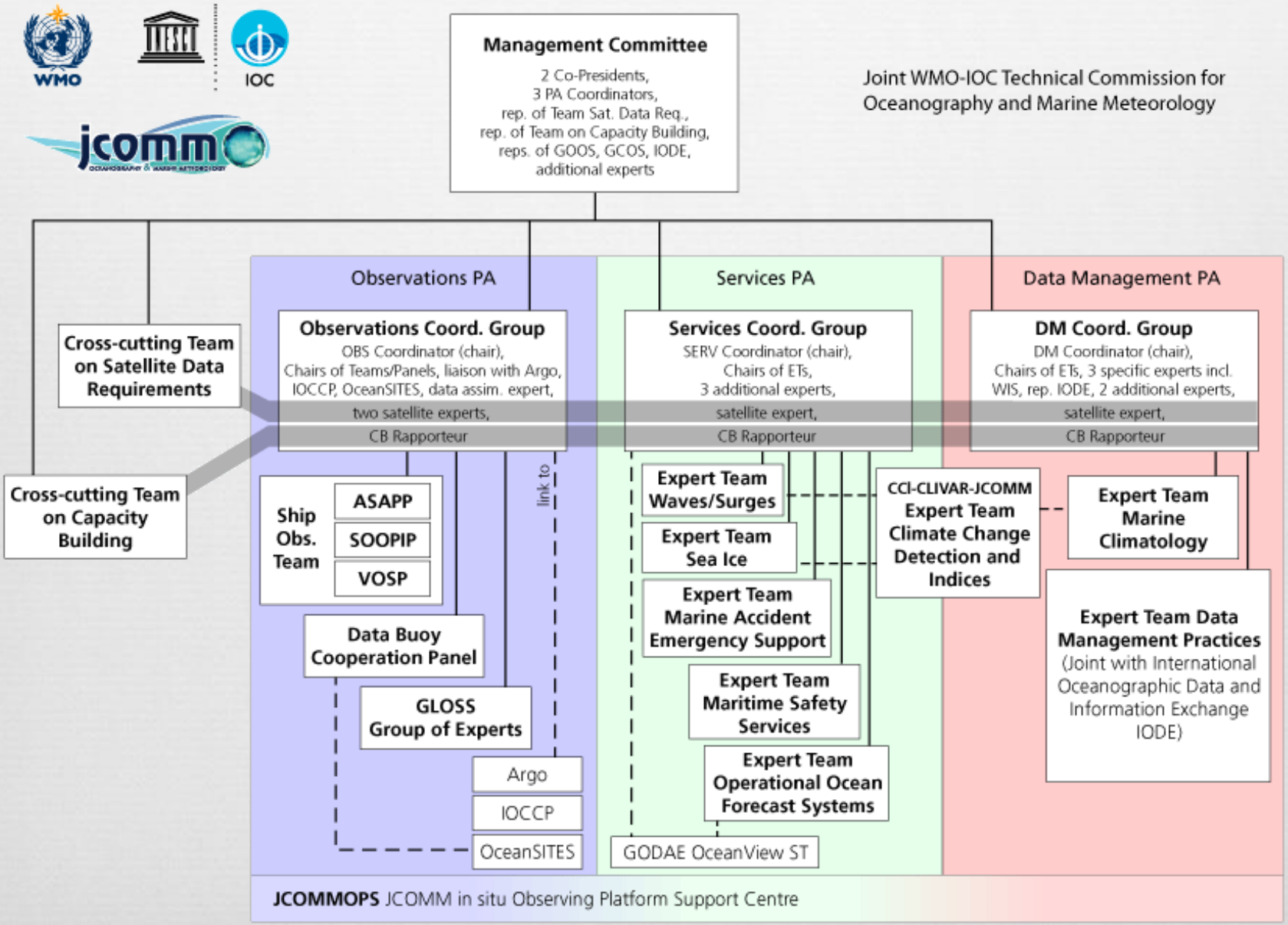
WMO Information system: the connection of RT with DM data centers (loose)



Problems with WIGOS

- Still too ‘physics oriented’ and open ocean: need to insert multidisciplinary and focus on advanced technologies available (gliders, HF radars, etc.)
- Not a clear path on how to connect the meteo and the ocean information systems
- Not a clear vision of the oceanographic users, still very technology driven
- Not interoperable with other marine data systems (environ. Protection agency, regional conventions, etc.)

The JCOMM organization



JCOMM opportunities

- Combine meteo and ocean data collection systems, information systems and connect to services
- Connect between satellite and in situ data
- Develop the concept of GOOS Regional Alliances (GRA) to organize the participation to WIGOS

The way forward: suggestions

- Leave the data assembly system of the two streams separate but fix the protocols of communication between them (periodic update of the DM assembled data)
- For DM:
  - focus on amount of data (rescue) easily available and on multidisciplinarity
  - focus on the re-use of the data for multiple users, further develop applications (DIVA, DVT)
  - show the complementarity between satellite and in situ data, develop new reconstructions algorithms
  - Try to connect to regional conventions (Helcom, Ospar and Unep/Map) and try to develop products for them

A possible strategy: evaluation of fitness for purpose