

STATUS OF WIGOS PILOT PROJECTS

Pilot Project V

Integration of Marine Meteorological and other appropriate Oceanic Observations into the WMO Global Observing Systems

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Summary and Purpose of Document

This document provides information on the implementation of WIGOS Pilot Project V as identified by Cg-XV.

ACTION PROPOSED

The meeting is invited to note the information on activities and status of Pilot Project V contained in this document when considering further implementation of WIGOS and the relevant update of the WIGOS Development and Implementation Plan.

- References:**
1. Abridged final report of the EC-LX (WMO-No. 1032)
 2. Final report of the first session of the EC WG WIGOS-WIS

Pilot Project V

Integration of Marine Meteorological and other appropriate Oceanic Observations into the WMO Global Observing Systems

1. Introduction and key deliverables

1.1 The Pilot Project for the integration of marine and other appropriate observations into the GOS, also named WIGOS Pilot Project for WIGOS has been working pro-actively since WMO Cg XV in developing its Project Plan. The deliverables of the WIGOS Pilot Project for JCOMM are (i) developing interoperability arrangements between ocean data systems and the WIS while proving for documented and standardized data, (ii) documenting & integrating best practices and standards, and (iii) Quality Management and implementation of cost effective Quality Management Systems (QMS). The Pilot Project multi-disciplinary approach will permit the provision of consistent, coherent, more timely, and better quality data and products, while at the same time minimizing duplication.

2. Scope

2.1 The cooperation with the ocean community and IOC is key, in particular with the IOC International Oceanographic Data and Information Exchange (IODE) and its system of National Oceanographic Data Centres (NODC). This will permit the development of appropriate connections between the IODE Ocean Data Portal (ODP) and the WIS for historical and recent data, including new sources of data for their integration into the WIGOS framework (e.g. World Ocean Database, upper ocean thermal data from Argo profiling floats and XBTs, Deep Ocean time-series multi-disciplinary reference stations, high resolution SST from satellites, sea level stations, marine climatological data sets, satellite data, etc.). Access to these ocean data sets will be facilitated through ODP connectivity to the WIS. Due to the diversity of data sets within the marine and ocean communities they have developed data policies to meet their needs. This being noted WIGOS agreed to respect (i) ownership of IOC for some of the components of the Global Ocean Observing System (GOOS), and (ii) data policies of partner organizations; adhering to the decisions of WMO EC Resolutions 40 and 25 respectively and the IOC Oceanographic Data Exchange Policy.

3. Activities

3.1 The *ad hoc* planning meeting for the JCOMM Pilot Project for WIGOS was held in Ostend, Belgium, 29 March 2008. The recommendations from the Executive Council Working Group on WIGOS-WIS were discussed and the Pilot Project plan updated so that it is in line with the WIGOS Concept of Operations (CONOPS).

3.2 Because of the strong potential synergies between the ODP and the JCOMM Pilot Project for WIGOS, the *ad hoc* planning meeting proposed to establish a joint Steering Group with balanced representation from the IOC and WMO communities. The Steering group includes representatives from CIMO, IODE, JCOMM Observations and Data Management Programme Areas, the IODE/JCOMM Expert Team on Data Management Practices (ETDMP), the WIS, the US Integrated Ocean Observing System (IOOS), IODE NODCs, and the MCSS Global Collecting Centres (GCCs).

3.3 A meeting of the Joint Steering Group for the IODE Ocean Data Portal and the WIGOS Pilot Project for JCOMM was held in Geneva, Switzerland, from 18 to 19 September 2008. The meeting updated the project plan, reviewed and adopted an implementation plan, discussed the business plan, capacity building issues, and addressed the core deliverables of the WIGOS Pilot Project for JCOMM and the IODE Ocean Data Portal. A strategy was proposed for reviewing progress considering risks, and trade-offs between time to deliver the project, costs and available resources, and quality of the deliverables.

4. Implementation plan

4.1 The implementation plan addresses the three core deliverables in sub-tasks, and provides detailed information on actions proposed to implement the plan (e.g. feedback with regard to specific implementation of the E2E, requirements for partners to develop interoperability). The responsibilities for undertaking the tasks, and/or following up their implementation, are given to groups or individuals with identified deadlines.

5. Business plan

5.1 Potential benefits that the Meteorological and Oceanographic agencies could gain from developing the Pilot Project have been included in the Project Plan.

5.2 A realistic business plan, focusing initially on the National Oceanographic Data Centres (NODCs), will be produced as a deliverable of the Pilot Project and is intended to be used by the Directors of NODCs to generate national support for the development of interoperable arrangements between NODCs and WIS. A sound business plan could facilitate decision making regarding essential software/hardware developments and national funding. While remaining relatively simple through a qualitative approach, the business plan should include the information necessary for securing the required funding.

5.3 The joint Steering Group came to the realization that it remains difficult during this phase of the Pilot Project to quantify the project's costs and benefits. Partners who volunteered to commit data sets in the Pilot Project have been requested to document functional requirements and conduct assessments nationally.

5.4 The Joint Steering Group came to the conclusion that at this point in the project it was premature to produce a generic business plan for use by the Directors of the NODCs. The September 2008 meeting agreed that the business plan should be produced towards the end of the Pilot Project and it would be based on experience gained with the partners, other WIGOS Pilot and Demonstration Projects. The Steering Group also agreed that potential synergies may exist with the Demonstration Projects and should be investigated and developed. Examples of derived benefits needed to be documented e.g.

- Benefits already stated in the CONOPS and the WIGOS Pilot Project for JCOMM project plan;
- Participation in GEOSS thanks to data made available to a wider community through the WIS (only one interface developed leading to more efficient maintenance);
- Cleaner access to the GTS and push the data to the GTS as with the present situation (e.g. NODCs being able to specify the GTS bulletins they need directly);
- More effective communication;
- Less redundancy;

6. Deliverable 1 - Instrument Best Practices and Standards

6.1 In terms of Instrument Best Practices, the Pilot Project recognizes the need for traceability to agreed standards, and is promoting developing a strong cooperation between JCOMM, CIMO, and HMEI. The Pilot Project intends to build on CIMO's experience with regard to instrument intercomparisons, instrument centres, etc.

6.2 The September 2008 meeting recommended that the JCOMM Observing Panels and associated programmes address the issue of documenting their best practices in light of the WIGOS developments. The various related publications available via WMO and IOC will be reviewed and updated as required. A strategy was proposed for the updating of the WMO Guide on Instruments and Methods of Observation (WMO No. 8) to better integrate oceanographic

issues. The strategy calls for future updates to be submitted through the JCOMM focal point on CIMO matters to the CIMO Focal Point for WMO No. 8.

6.3 The meeting proposed that instrument best practices related to surface meteorological and marine observations be included in the relevant chapter of the CIMO guide while inviting JCOMM to consider developing similar best practices for the sub-surface observations as part of a separate document, perhaps published by IOC. All relevant documentation would avoid duplication, provide for appropriate links, and be referenced in the JCOMM Catalogue of Best Practices and Standards (see below). This work will have to be coordinated between WMO and IOC. **The EC WG WIGOS-WIS was invited to address this issue again - taking IOC's ownership into account - and provide further guidance to the Pilot Project.**

6.4 The Pilot Project is proposing to establish regional marine instrument centres using CIMO's regional instrument and radiation centres as models. The NOAA National Data Buoy Centre (NDBC) has offered to investigate the feasibility of such a marine centre and agreed to act as such centre on a trial basis. The JCOMM Focal Point on CIMO matters was invited to review CIMO Terms of Reference for instrument centres, draft Terms of Reference for marine instrument centres and develop a proposal for the trial period to be circulated to the Joint Steering Group for consideration and approval.

6.5 The Pilot Project reviewed the methodology proposed by CIMO for conducting instrument intercomparisons to ensure homogeneity, and compatibility of the observations. The joint Steering Group agreed to explore how JCOMM and ocean instrument comparisons can profit from the CIMO process.

7. Deliverable 2 - Interoperability with WIS

7.1 The Pilot Project in particular is addressing interoperability issues between the Ocean Data Portal (ODP) and WIS, as well as between other ocean data systems and WIS. The Pilot Project proposes to achieve interoperability with WIS mainly through (i) ocean data centres contributing to the ODP, and (ii) ODP becoming fully interoperable with the WIS.

7.2 While recognizing that it was difficult at this point in the pilot project to make precise recommendations regarding the convergence of the WMO Core Metadata Profile, and other metadata profiles used in the marine community (e.g. Marine Community Profile – MCP –, SeaDataNET Common Data Index – CDI), the Joint Steering Group recommended to submit MCP and/or any other relevant metadata profiles through the JCOMM/IODE standards process for review by a wider user community. This process would help MCP to build on WIS specifications and for the development of specific recommendations that will achieve interoperability with WIS.

7.3 Excellent progress has been made with regard to the development of version 1 of the IODE Ocean Data Portal (ODP). Development of version 2 of the ODP has begun, but will continue for up to two years. Understanding this, the Joint Steering Group agreed that the Pilot Project should, as part of the Pilot Project deliverables, target version 1 for connecting specific data sets to ODP and WIS. This strategy will allow for the refinement of version 2 requirements.

7.4 The Joint Steering Group reviewed potential partners and data contributions. Discussions have taken place since the March 2008 meeting to address them, namely the SeaDataNET, the GHRSSST-PP, and the Global Collecting Centres (GCCs – delayed mode VOS data as part of the MCSS). The September 2008 meeting noted with appreciation the development of a Virtual constellation for the measurement of Ocean Surface Vector Wind. Thirteen potential partners were finally identified for providing key data-sets to the Pilot Projects as key deliverables. The Joint Steering Group has designated individuals to follow up with these potential partners and data contributors acquiring their participation in the WIGOS pilot project and eventually WIGOS. The Joint Steering Group also asked the Secretariat to write to the potential pilot participants seeking their participation.

8. Deliverable 3 - Quality Management

8.1 In terms of Quality Management, Best Practices and Standards, JCOMM has engaged in the following interlinked activities consistent with the WMO Quality Management Framework (QMF):

- the development of a JCOMM Catalogue of Best Practices and Standards compiling appropriate documentation from WMO and IOC. It is planned to recruit a consultant in order to have a draft available by March 2009;
- the establishment, in cooperation with the IOC International Oceanographic Data and Information Exchange (IODE) of a Standards process (<http://www.oceandatastandards.org/>) to achieve broader agreement and commitment to the adoption of a number of standards related to ocean data management and exchange. In addition promoting a higher level of standards, including common WMO-ISO standards as appropriate, thanks to the recent WMO-ISO agreement.

8.2 Minimum requirements for developing a Quality Management System (QMS) as part of WIGOS the Pilot Project takes into account the 9 quality principles as stated in the ISO Quality Management documents ISO 9000:2000 and ISO 9004:2000: Customer focus, Leadership, Involvement of people, Process approach, System approach to management, Continual improvement, Factual approach to decision making and Mutually beneficial supplier relationships. The Joint Steering Group proposed to include in the Business Plan guidelines for implementing QMS.

8.3 The joint Steering Group also noted that the implementation of the ISO9000 standard would be very resource demanding and thus probably unrealistic for the pilot project. The September 2008 Meeting decided that a more realistic approach would be to invite partners, who agreed to participate in the pilot project as data providers, to carefully document quality management procedures they now utilize. These could include, *inter alia*, quality control practices, monitoring, feedback, response capabilities etc. The combined input received from all partners could then be compared with the goal of identifying common procedures. These could then be submitted to the IODE/JCOMM Ocean Data Standards Pilot Project for adoption as a standard. It was further recommended to add this information to the JCOMM Catalogue of Best Practices.

9. Capacity Building

9.1 In terms of Capacity Building, the Pilot Project is focusing on the cooperation of developing countries in the Ocean Data Portal project, the need for collaboration in the development of training materials between WMO and IOC on topics related to JCOMM, the promotion of WIGOS at the national level, and the organization of training courses in topics relevant to the WIGOS Pilot Project for JCOMM.

10. Conclusion

10.1 The joint Steering Group believes that the Pilot Project cannot realistically achieve success without receiving appropriate funding for the coordination of the Pilot Project. At the September 2008 meeting, the Steering Group urged the WMO and IOC to commit CHF 50000 and CHF 30000 in 2009 respectively, and CHF 30000 and CHF 20000 in 2010 respectively.
