

**JOINT WMO-IOC TECHNICAL COMMISSION
FOR OCEANOGRAPHY AND MARINE
METEOROLOGY (JCOMM)**

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WMO Secretary-General
and UNESCO/IOC
Executive Secretary

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11.1 and 11.2

QUALITY MANAGEMENT

BACKGROUND MATERIAL

SUMMARY

Reference: JCOMM-III/Doc. 11

CONTENT OF DOCUMENT:

Appendix:

- Background material

BACKGROUND MATERIAL

Development of the WMO Quality Management Framework (WMO-QMF)

1. The WMO Congress, at its fourteenth session (May 2003), decided through the adoption of Resolution 27 (Cg-XIV), that WMO should work towards a quality management framework (QMF) for NMHSs. It was envisaged that such a framework would eventually be comprised of WMO technical standards, quality management system(s) (QMS), including quality control, and certification procedure(s). It also requested the technical commissions:

- (a) To maintain an up-to-date catalogue of all technical publications applicable to the WMO Quality Management Framework and review these publications according to quality management principles;
- (b) To provide, following the guidance of the Executive Council, necessary contributions to Volume IV of the WMO Technical Regulations for adoption at the earliest possible date;
- (c) To provide, quality-related technical guidance, advice, review and assessment, as appropriate.

2. In support of the development of the WMO-QMF, the fifty-sixth session of the Executive Council (June 2004) through Resolution 8 (EC-LVI) established an Inter-Commission Task Team on the Quality Management Framework (ICTT QMF).

3. The WMO Congress, at its fifteenth session (May 2007), adopted two QMF-related resolutions:

- (a) Resolution 31 (Cg-XV) Implementation of Quality Management Systems (QMS) by National Meteorological and Hydrological Services;
- (b) Resolution 32 (Cg-XV) WMO Quality Management Framework including Annex to Resolution 32 (Cg-XV) WMO Quality Policy.

4. Through Resolution 31 (Cg-XV), Congress encourages NMHSs to implement a QMS covering, if possible, most of their activities, or at least those they consider critical to the provision of data, products and services. It encourages NMHSs to implement, where possible, a QMS following, as far as possible, the latest version of the ISO 9001 quality management standard, or other appropriate internationally recognized standards, for the managerial processes, as necessary. Nevertheless, Congress recognized that the adoption and implementation of a QMS is customer-driven and country-specific.

5. Resolution 32 (Cg-XV) recognizes the Quality Management Framework as an appropriate holistic approach for the delivery of data, products and services that is based on the 8 quality management principles¹ of quality management and that it can be implemented through structured quality management systems. Congress also recognized that the implementation of the WMO QMF should result in the exchange of data and products of known and sufficient quality for their intended use. The aim of the WMO QMF is the development, use and maintenance of the WMO technical documentation that may be used in developing QMSs for the provision of data, products and services by NMHSs.

¹ The 8 quality management principles, developed by ISO/TC176/SC2/WG15, are available on the ISO website and include: user/customer focus; leadership; involvement of people; process approach; systems approach to management; continual improvements; factual approach for decision making; and mutually beneficial supplier relationships.

6. The WMO Executive Council, at its sixtieth session (June 2008), emphasized the requirements for developing suitable technical publications to provide the necessary advice to technical commissions in reviewing the existing documents and adjusting them to Quality Management System (QMS) requirements and preparing and publishing the necessary updates.

7. WMO is now recognized as an international standardizing body by the International Organization for Standardization (ISO) and the agreement between ISO and WMO was adopted in September 2008, giving WMO the status and authority for the development of international standards related to meteorological, climatological, hydrological, marine and related environmental data, products and services. The establishment of ISO-recognized WMO standards and regulations is expected to increase user confidence in the quality of the services provided; thus strengthening the NMHSs' position in an increasingly competitive environment. Such a status will enable WMO Members to use the WMO technical publications in the same way as ISO documents in their quest for ISO 9000 certification. Detailed information is available at <http://www.wmo.int/pages/prog/www/QMF-Web/home.html>.

8. The ICTT-QMF has discussed the necessary elements associated with the implementation of the WMO-QMF, including the further development of Volume IV on Quality Management within the Technical Regulations to address in general the topic of quality management. The Volume IV on "Quality Management" of the Technical Regulations proposed to be generic and describe the WMO-QMF as a coordinated approach to the delivery of meteorological, climatological, hydrological, marine and related environment data, products and services. Its draft includes the WMO quality policy, the eight quality management principles, the roles of the WMO constituent bodies and the harmonized approaches to quality management among the technical commissions. Draft available at http://www.wmo.int/pages/prog/www/QMF-Web/Documentation/WMOGuides/WMO-49_TechRegulations_Vol-IV-QMF.pdf. A guide on quality management that should assist Members in the establishment of a QMS is also proposed. This guide would be very generic and give guidance on general concerns of Members.

9. The WMO Executive Council, at its sixty-first session (June 2009), through Resolution 4.2/1 (EC-LXI) established procedures to be followed by all technical commissions and EC working groups in proposing common ISO/WMO Technical Standards. Detailed information is given in the *Abridged Final Report with Resolutions of the Sixty-first Session of the WMO Executive Council* (WMO-No. 1042) available at: http://www.wmo.int/pages/governance/ec/ec_docs_en.html.

Development of Standards and Best Practices under JCOMM

10. JCOMM and its predecessors have been engaged on the: (1) global coordination, standardization and regulation of the provision of marine meteorological services; and (2) recommendation of best practices in instrumentation, observations and data quality control for the different specialized components of the ocean observing system. The results of this work have been consolidated in a number of WMO and UNESCO/IOC publications.

11. The first (June 2001) and second (September 2005) sessions of JCOMM addressed the importance of and role of JCOMM in evaluating and setting standards for instruments, observations and data management practices. JCOMM-II further recognized the role of the Commission in developing standards and nomenclature for products and services. The JCOMM Management Committee, at its sixth session (Paris, December 2007), agreed on a number of components to address these issues:

- (a) Compilation of existing standards and best practices material under JCOMM into a catalogue;
- (b) Implementation of a strategy for updating and maintaining existing material;

(c) Implementation of a strategy for identifying and filling gaps.

12. A Catalogue of Best Practices and Standards under JCOMM and IODE of UNESCO/IOC has been prepared by Mr Robert Gelfeld and a test site has been published on the web at <http://bestpractice.iode.org/> by the UNESCO/IOC Project Office for IODE. This catalogue contains a list of documents and publications that include best practices and standards relevant to JCOMM, and will help to identify deficiencies, duplication, discrepancies, and the potential for cross-referencing. Sixty-four documents and publications have been identified for inclusion in the catalogue, which provides the following information:

TITLE – title of publication or document
 CREATOR – general WMO, UNESCO/IOC, JCOMM Group, Panel or Task Team
 IDENTIFIER – publication or document number
 RELATION – other associated publication or document number (including revision)
 SUBJECT – general subject descriptor
 DESCRIPTION – short abstract
 PUBLISHER – actual WMO, UNESCO/IOC, JCOMM Group, Panel or Task Team
 DATE – year published
 STANDARD TYPE – text description of standard addressed
 FORMAT – hyperlink to URL where publication or document can be found
 SOURCE – specific WMO, UNESCO/IOC, JCOMM Group, Panel or Task Team
 COVERAGE – geographic coverage
 STATUS – current status or recommendation

13. Recognizing that although there were mechanisms to help coordinating ocean data exchange, these had not resulted in the degree of agreement on a wide range of matters that are needed in order to allow the easy exchange and interoperability of data collected. In this context, JCOMM, in cooperation with the IODE of UNESCO/IOC set up a process for adopting standards related to ocean data management and exchange. The standards that are produced by this process are intended primarily for the use of the marine meteorological and oceanographic community. If they have wider applicability, these may be submitted to appropriate international standards bodies, such as ISO, taking into account the procedures to be followed by all technical commissions in proposing common ISO/WMO Technical Standards (as described in paragraph 9 of this report). Detailed information on the above-mentioned standards process is available at <http://www.oceandatastandards.org>. Detailed information on the IODE-JCOMM standards process is provided under agenda item 7.3.

14. The IODE-JCOMM standards process also provides a framework for the WIGOS Pilot Project for JCOMM to further develop appropriate and widely accepted quality management standards to address issues such as instrument best practices, real-time and delayed-mode quality control procedures (automatic and/or manual), data collection and exchange formats, and products using observational data. Detailed information on instrument best practices is provided under agenda item 6.2 and on the WIGOS under agenda item 10.2.

Quality Management System for the Provision of Met-ocean Services

15. The ICTT-QMF, at its third session (October 2008), recognized the need for a Quality Management System for the provision of met-ocean services for international navigation, and suggested JCOMM to develop such a system in liaison with IMO, using CAeM as an example, where a clear customer requirements, feedback and process is in place through ICAO.

16. Additionally, the WMO EC-LXI recognized the need for the development of a Quality Management System (QMS) for the provision of marine meteorological services for international navigation. It therefore requested the WMO Secretary-General, in liaison with the IMO, to integrate Quality Management (QM) principles in the regulatory documents on marine meteorological services. The Council urged WMO Members to implement QMS for the provision of marine

meteorological services for international navigation and to document the process in order to share with other NMHSs, with a view to facilitating and expending QMS implementations.

17. The Australian Bureau of Meteorology had already commenced a quality management initiative and in doing so had achieved certification of compliance with the AS/NZS ISO 9001:2008 Quality Management Standard for the delivery of aviation weather services. In September 2009 the Bureau had begun broadening the scope of its quality management system, and among others, it was to include the delivery of marine weather services.

User and customer requirements

18. The International Maritime Organization (IMO) resolution A.705(17) on promulgation of maritime safety information was adopted by IMO/MSC-85 (2008). The resolution set out the organization, standards and methods which should be used for the promulgation and reception of maritime safety information, including navigational and meteorological warnings, meteorological forecasts and other urgent safety-related messages broadcast to ships, as documented in the International Convention of Safety of Life at Sea (SOLAS). The WMO EC-LXI (June 2009) requested the WMO Secretary-General to establish and develop, in collaboration with the IMO, terms of reference for an IMO/WMO World-Wide Met-ocean Information and Warning Service (WWMIWS), to complement the existing IMO/International Hydrographic Organization (IHO) World-Wide Navigational Warning Services (WWNWS, IMO resolution A.706(17)), in order to clearly define the requirements for the provision of marine meteorological services for international navigation, for consideration by WMO EC-LXII (2010).

User feedback

19. A marine meteorological services (MMS) monitoring programme was initiated by the WMO Commission for Marine Meteorology (CMM) in 1981 and user surveys have been conducted every four years, with the questionnaires distributed to shipmasters through national PMOs. The analysis of the 2009 survey results is provided under agenda item 8.3 on service delivery.

Process

20. The *Manual on Marine Meteorological Services* (WMO-No. 558), the *Joint IMO/IHO/WMO Manual on Maritime Safety Information*, the *NAVTEX Manual* and the *International SafetyNET Manual* provide technical regulations and standard instructions for the promulgation and reception of maritime safety information, including marine meteorological services, as stated in SOLAS.
