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| **World Meteorological Organization**  **Commission for Instruments and Methods of Observation**  **CIMO Management Group**  **Fifteenth Session** Geneva, Switzerland, 26 – 29 March 2018 | **CIMO/MG-15/Doc. 3.4** |
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# CIMO ACTIVITIES IN THE EVOLVING CONTEXT OF wmo, AND COLLABORATION WITH INTERNATIONAL ORGANIZATIONS

**Collaboration with other international organizations**

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| **Summary and purpose of document**  This document provides information on the collaborations that took place between CIMO and international organizations (BIPM; HMEI and ISO). It makes a number of proposals for the continuation of such activities in the future. |

**Action proposed**

The Meeting is invited to:

1. Make recommendations on the continuation of such collaborations into the future.
2. Decides whether it wants to establish a list of key priorities for work by the metrology community.
3. Advise on the preferred nomination process for representatives of international organizations in CIMO activities.
4. Take measures to ensure the finalization and maintenance of the neutral tender specifications project.
5. Develop a procedure to align the WMO and ISO approval processes, based on the experience made in working on the first 3 common WMO-ISO standards.
6. Provide recommendations towards WMO’s position in respect of the new ISO work proposals.

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**Appendix:**  Resolution 8 (EC-LXI) – Procedures to be followed in proposing common WMO/ISO Technical Standards.

**COLLABORATION WITH OTHER INTERNATIONAL ORGANIZATIONS**

***Collaboration with BIPM and the metrology community***

1. Collaboration between CIMO and the metrology community took place at different levels. Bertrand Calpini represents CIMO in the EURAMET Research Council and in the Task Group Environment. BIPM experts are involved in several CIMO Expert Teams and have very positively contributed to the work and outcomes of these ETs.
2. The reduced session of TT-RadRef was held at the National Physical Laboratory, in London (UK), with participation of BIPM representatives. This was a very fruitful meeting. Again the participantion of the metrology experts was important in identifying the way forward for radiation references, and in particular in view of a possible reference change.
3. The BIPM experts attending TT-RadRef informed that it would be valuable for the metrology community to have a **list of key topics** that WMO would like the metrology community to work on. This would enable that community to refer to it when developing research proposals and projects, like in the context of the EMRP projects.
4. Several activities were carried in the context of the EURAMET METEOMET project, which resulted in metrology and meteorology experts working together. A Metrology for Meteorology Workshop was organized in parallel with TECO-2016. It has been assessed as being a very positive combination from the participants of TECO, though it represented a challenge to attend both events.
5. The Meteomet project also led to the organization of an interlaboratory comparison across Europe with participation from all RA-VI RICs and many more NMHSs calibration laboratories. The processes developed during that interlaboratory comparison are now being applied for another interlaboratory comparison in RA II and V.

***Collaboration with the Association of Hydrometeorological Equipment Industry (HMEI)***

1. As in past intersessional periods, HMEI has been well represented in CIMO ETs. The contributions from the HMEI experts have been very much appreciated and have positively contributed to the work and outcomes of these ETs.
2. Numerous change in membership have been proposed by HMEI over the intersessional period, usually consisting of addition of HMEI representative in the ETs or short-term replacement of some members. It order to streamline the work of the ETs, it is proposed that HMEI experts should preferably be nominated for the entity of the intersessional period, rather than to join the ETs at a later stage.
3. The work on the tender specification procurement has made significant progress lately (see INF. 6). It will require further support from CIMO until CIMO-17. The maintenance of this documentation in the future will also have to be considered in the CIMO work programme.

***Collaboration with the International Organization for Standardization (ISO)***

**General matters**

1. ISO TC146/SC5 “Meteorology” has expressed the interest to hold several of its working group meeting in Amsterdam during TECO-2018. This would be the case for the working groups on wind profilers, lidars, weather radars. Arrangement with the organizers of MTWE are being made by the WMO Secretariat to enable this.
2. There is regular confusion in the WMO community on the terminology used with respect to ISO standards because of the term “standard” that has a totally different meaning in the ISO and WMO communities:
3. In the WMO terminology, “standard practices and procedures” are the practices and procedures that Members **are required to follow** or implement (shall).
4. In the context of the working Working Arrangements between WMO and ISO, the word “standard” is meant as defined by ISO/IEC Guide 2:2004. In this context, an ISO standard is a document describing a procedure to be followed, and does not have the meaning of a WMO standard practice that requires Members to implement it. ISO standards are voluntary, as long as they are not stated in regulatory documents, such as the WMO Technical Regulations and Manuals.
5. In view of the experience made with the approval process of common WMO-ISO standards, it is proposed that the approval process be formalized and aligned, as far as possible, with the ISO process to ensure all WMO Members have a chance to express their views and propose amendments on the draft standard prior to its publication.
6. The Working Arrangements with ISO are not specific on how the internal approval process of the two organizations take place. Following on the signature of the working arrangements with ISO, the WMO Executive Council, at its sixty-first session adopted Resolution 8 (EC-61, Resolution 8) that is provided in Appendix I. This resolution address how to propose a current WMO standard or recommended practice to become a standard practice, but it does not specify the WMO-internal approval process. Furthermore, it does not formalize the way WMO will decide to work together with ISO on a new work item.
7. It is proposed that CIMO, based on the experience that it gained in collaborating with ISO develops a proposal to align the WMO and ISO approval processes. Such a recommendations could be developed over the coming months and reviewed by correspondence/teleconference with the CIMO MG members prior to its submission to CIMO-17.

**Ongoing development of common standards**

1. CIMO actively collaborated with ISO on 2 common WMO-ISO standards.
2. **Ground-based remote sensing of wind by heterodyne pulsed Doppler lidar** (Part 2, of the ISO lidar series): This common WMO-ISO standard has been approved and published by both organizations. (ISO 28902-2:2017 and CIMO Guide 2014 Ed, Updated in 2017)
3. **Weather Radar - Part 1: System performance and specification** (ISO 19926-1): The work on this weather radar standard has well progressed. It is in the final review/approval stage. There has been some confusion on the stage of development of the standard, also due to the fact that one stage of the ISO approval process was skipped. A clarified, and better aligned, parallel approval process for both organizations would be helpful in the future.
4. **Specification and classification of instruments for measuring hemispherical solar and direct solar radiation** (ISO 9060): some manufacturers and the Association of Hydro-meteorological Equipment Industry (HMEI) have approached WMO to share their concerns as they are of the opinion that some of the proposed modifications may not be in the best interest of the meteorological users community. A liaison report was provided by the WMO Secretariat at the meeting of the relevant ISO Technical Committee to ensure that ISO 9060 and the latest version of the WMO Guide to Meteorological Instruments and Methods of Observation (WMO-No. 8) are not disseminating conflicting guidance, proposing to review the standard, and to comment on it, if necessary, before the standard is finalized. In spite of several attempts to liaise with the chair of the ISO TC180/SC1 to obtain the latest version of the standard to distribute it to the WMO experts, no response was obtained.

**Potential future collaborations**

1. ISO has recently proposed to its Technical Committee to work on a number of standards relevant to WMO activities. Two of these proposals have already been shared with the Chair of the relevant CIMO ET and then with the CIMO MG members. The views expressed by the CIMO MG members were supportive of working collaboratively on these standards towards making them common WMO-ISO standard. For each of them, it is proposed that the meeting adopts the text as proposed below:
2. **Ground-based remote sensing of wind – Radar wind profiler** (ISO 23032, TC146/SC5)

**Draft text for consideration:**

As wind profilers are readily used by NMHSs of several countries, it would be useful to develop this document as a common WMO-ISO standard. It is recommended that some editing of the text be carried out to enable the reader to easily identify the requirements and the recommendations from the standard. Furthermore, it is recommended that the area of calibration be addressed as well in the standard. Some additional technical comments are available for sharing with the ISO working group.

CIMO is supportive of this initiative and wants to work together with ISO on developing this document as a common WMO-ISO standard. Furthermore, as the chair of the ISO working group happens to also be the chair of the CIMO Expert Team on Operational Remote-Sensing Technologies, this should simplify the liaison between the two organizations. CIMO-MG-15 recommends that the Secretary-General of WMO officially informs ISO about the interest of WMO to develop this document as a common WMO-ISO standard.

1. **Part 4: Ground-based remote sensing of meteorological parameters — Particle backscatter lidar** (ISO 28902-4, TC146/SC5):

**Draft text for consideration:**

CIMO is supportive of this initiative and wants to work together with ISO on further developing this document as a common WMO-ISO standard as far as it will be limited to **meteorological applications of back-scatter lidar**.

This standard will require additional work to conform for other ISO  standards (or co-standards with other international bodies) standards on nomenclature for electromagnetic radiation transfer (International Electrotechnical Commission, 1987: International Electrotechnical Vocabulary, Chapter 845: Lighting, IEC 60050-845. Geneva; and the WMO Guide to Meteorological Instruments and Methods of Observation, WMO-No.8).

CIMO-MG-15 recommends that the Secretary-General of WMO officially informs ISO about the interest of WMO to develop this document as a common WMO-ISO standard.

1. The other standards listed below were received recently and only very preliminary consultations were carried out within WMO. The meeting is invited to make recommendations as it feels appropriate towards possible collaborations on these standards.
2. **Weather Radar - Part 2** (ISO 19926-2, TC146/SC5) This document is currently on hold. ISO is interested to collaborate with IPET-OWR to develop it as a common WMO-ISO standard. Currently, ISO does not have a group of experts able to work on it, as it requires an expertise different from the expertise that was needed for Part 1, and which came mainly from manufacturers. IPET-OWR is also interested in this collaboration. Further consultations will take place at the forthcoming meeting of IPET-OWR in May 2018.
3. **Test methods for snow depth sensors** (ISO 23435, TC146/SC5). The proposed scope of this standard is to specify requirements and test method for snow depth sensors. The standard would be applicable to automatic snow depth sensors which employ ranging technologies by which the sensors measure the distance from the snow surface to the sensor. The proposed standard will provide a) characteristics for the test of snow depth sensors; b) method for lab tests including the basic performance test and tests under various environmental changes; c) artificial snowing lab; d) requirements of field tests: siting, reference measurement, environment, intercomparison, etc.
4. **Visibility sensors – Test methods and criteria for accuracy** (ISO 23436, TC146/SC5). The scope of the proposed standard is to define the error range of visibility for forward and backward scattering type visibility sensor at 1 - 25 000 m and the installation and test methods for comparative observation.
5. **Hydrometry - Specification for a reference raingauge pit** (ISO 23410, TC113). The scope of the standard specifies the design of a reference raingauge pit designed for the measurement of liquid precipitation. The raingauge pit to be described in the standard may be used in its own right for improved measurement of rainfall, for wind effects evaluation or for comparison purposes against other reference raingauges. This proposal is based on an existing CEN standard that is itself based on the outcome of the WMO Intercomparison of Rainfall Intensity Gauges at Vigna di Valle.
6. **Hydrometry - Precipitation measuring devices** (ISO 23350, TC113). The scope of the standard specifies the functional requirements of instrumentation for measuring precipitation like rain or snow, and measurement uncertainty, primarily for the purpose of stream inflow prediction and meteorological observation. The key details are first, the matters of function of each device according to the measuring method of precipitation and environmental conditions and second, the matter of calculation method for uncertainty to indicate the reliability of measurement for each precipitation gauge.
7. **Hydrometry - Density of precipitation stations** (ISO 23334, TC113). The scope of the standard specifies guideline for density of precipitation station of basin. The key details are first, classification of basin by its characteristics and second, guideline for density of precipitation stations by basin characteristics, and design and evaluation method regarding density of precipitation stations. This standard is outside of the area of activities of CIMO, but is listed here as it is definitely of interest to the WIGOS community.

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**RESOLUTION 8 (EC-LXI)**

**PROCEDURES TO BE FOLLOWED IN PROPOSING   
COMMON WMO/ISO TECHNICAL STANDARDS**

THE EXECUTIVE COUNCIL,

**Noting:**

(1) Article 26 of the WMO Convention,

(2) Resolution 6 (Cg-V) – Relations with the United Nations and international Organizations,

(3) The working arrangements between the International Organization for Standardization (ISO) and WMO formally adopted on 16 September 2008,

**Recognizing** the wide ranging benefits to National Meteorological and Hydrological Services and user communities resulting from the implementation of common Standards for meteorological, climatological, hydrological, marine and related environmental data, products and services,

**Considering:**

(1) The importance of following up on the working arrangements between the International Organization for Standardization and the World Meteorological Organization;

(2) The need to establish the benefit/cost implication to Members of elevating an existing Technical Regulation/Manual/Guide to a common Standard, considering the consequences of converting recommendations to compulsory Standards;

(3) The importance of determining cross-cutting elements of proposed common Standards with other WMO documents under the control of different technical commissions or Executive Council panels and working groups requiring action from these bodies following the approval of the common Standard;

**Decides** that, for each proposed common Standard, the responsible body initiating the proposal should prepare comprehensive supporting documentation that includes:

(1) The benefit/cost implication to Members of submitting an existing Technical Regulation/Manual/Guide for adoption as a common WMO/ISO Standard, considering the consequences of converting recommendations to compulsory standards (from “should” to “shall”) when applicable;

(2) A full description of the cross-cutting elements of the proposed common Standard with other WMO documents under the control of different technical commissions or Executive Council panels and working groups that would lead to a requirement for action from these bodies in the event of the Standard being created. To this end, presidents of technical commissions and Executive Council members are to be informed about potential impacts and invited to register an interest in the document being processed;

(3) An assessment of which elements in the common Standard could create a risk if adopted, and which ones would constitute a risk if omitted or not approved as a common WMO/ISO standard. This risk assessment should be provided with due reference to the AS/NZ 4360:2004 Standard for Risk Management.

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