



INSTRUMENTS AND METHODS OF OBSERVATION PROGRAMME; THE REPORT OF THE PRESIDENT OF CIMO

SUMMARY

ACTION REQUIRED:

Congress is invited to provide guidance regarding the future implementation of IMOP Programme.

REFERENCE:

Abridged Final Report with Resolutions and Recommendations of the Fourteenth Session of the Commission for Instruments and Methods of Observation (WMO-No. 1019)

CONTENT OF DOCUMENT:

Appendices for inclusion in the final report:

- A. Draft text for inclusion in the general summary of Cg-XV
- B. Draft Resolution 3.1.5/1 (Cg-XV) – Instruments and Methods of Observation Programme

Appendix for information:

Cg-XV/Rep. 3.1.5: Progress/Activity Report

DRAFT TEXT FOR INCLUSION IN THE GENERAL SUMMARY OF Cg-XV

3.1.5 INSTRUMENTS AND METHODS OF OBSERVATION PROGRAMME; THE REPORT OF THE PRESIDENT OF CIMO (*agenda item 3.1.5*)

3.1.5.1 Congress agreed that standardization is a key area of CIMO activities and that the current trend in preparation of technical advice to Members should continue. It noted that 7th edition of the *Guide to Meteorological Instruments and Methods of Observation* (CIMO Guide) was adopted by CIMO-XIV and agreed that it is the unique source of information for observing network managers and technicians to keep the national observing networks standardized to guarantee the required quality of NMHSs' products and services to users. The Congress requested the Secretary-General to publish the electronic versions of the CIMO Guide in all relevant languages on WMO website to make widely accessible.

3.1.5.2 Congress recognized the importance of traceability of measurements to System International (SI) standards for the required quality and worldwide compatibility of observational data. The Congress requested the Secretary-General to collaborate in this respect with the International Bureau for Weights and Measures (BIPM) and to promote further the concept of traceability to SI among Members.

3.1.5.3 Congress agreed that difficulties in linking NMHSs' working standards with international standards might be overcome through the strengthened Regional Instrument and Regional Radiation Centres (RICs, RRCs). It strongly encouraged that these centers should be significantly strengthened to offer required services to their Members and requested the Secretary-General to assist in identification of funding sources to address the needs of the RICs and RRCs.

3.1.5.4 Congress reaffirmed its continuing commitment to conduct instrument intercomparisons to guarantee the worldwide compatibility and homogeneity of data, a fundamental need for quality of NMHSs' products and services. It noted that a preliminary list of urgently needed instrument intercomparisons had been approved by CIMO-XIV and agreed that the funding of intercomparisons had been a long-standing issue and should be addressed by the Secretary-General so that at least partial funding is made available in the regular WMO budget for this important activity, as requested by EC-LVII.

3.1.5.5 Congress agreed to continue in the current trend in building the capacities of Members related to IMOP. It noted that CIMO had identified urgent needs for training in the operational practice of NMHSs in the area of: (a) upper-air observations (in-situ and remote sensing); and (b) metrology and calibration.

DRAFT RESOLUTION

Res. 3.1.5/1 (Cg-XV) - INSTRUMENTS AND METHODS OF OBSERVATION PROGRAMME

THE CONGRESS,

Considering:

- (1) The continued need for the provision of high quality, compatible and homogeneous meteorological data which are of the utmost importance for operational and research activities of WMO Members,
- (2) The need for continuous standardization of instruments and observing methods and worldwide traceability of measurements to System International (SI) standards,
- (3) The need for continuous improvement of meteorological, related geophysical and environmental measurement technologies and methodologies,
- (4) The importance of applying new technology for the cost-effective generation of measurements and acquisition of observational data,
- (5) The need to ensure interoperability among observing technologies and systems with a view to evolving into a integrated global observing system,
- (6) The continuing need for training of instrument specialists and technicians for the operation, maintenance and calibration of observing technology, especially from developing countries,
- (7) The need to carry out intercomparisons of instruments and observing systems,
- (8) The need for continuing close collaboration of CIMO with the other technical commissions, especially with CBS and WMO Programmes, for meeting their requirements for measurements and observations,
- (9) The role of the Regional Instrument and Regional Radiation Centres (RICs, RRCs) in progressing instrument calibration, training and capacity building,

Reaffirms that WMO, in further developing and implementing its Instruments and Methods of Observation Programme, should continue its collaboration with international bodies such as the International Organization for Standardization (ISO), the International Bureau of Weights and Measures (BIPM) and the European Cooperation in the Field of Scientific and Technical Research (COST) and with the Association of Hydrometeorological Equipment Industry (HMEI);

Requests the Executive Council, with the assistance of CIMO and other relevant technical commissions, to promote, guide and assist in the implementation of the WMO Instruments and Methods of Observation Programme;

Invites the regional associations:

- (1) To continue providing active support for regional aspects of the Instruments and Methods of Observation Programme, especially as regards capacity building;
- (2) To assess, together with CIMO or a relevant national/international agency, at least every five years, existing RICs and RRCs to verify their capabilities and performance;

- (3) To organize regular Regional Pyrheliometer Comparisons in one of the RRCs and inter-laboratory calibration tests among existing RICs;

Requests the presidents of technical commissions to keep under continuous study and review the aspects of instruments and methods of observation related to their fields of specialization and to communicate their requirements to CIMO;

Urges Members:

- (1) To collaborate actively in, and to give all possible support to, the implementation of the Instruments and Methods of Observation Programme;
- (2) To continue and, if possible, increase their activities for the development of new observing instruments and systems with the emphasis on interoperability cost-effectiveness;
- (3) To support and participate in global and regional intercomparisons of instruments and new methods of observation and to apply the results of those comparisons in their observing networks;
- (4) To support development of new standards, such as those for automation of manual, visual and subjective observations;
- (5) To support the development of basic procedures for quality management of observations, instrument maintenance, calibration and operational practices;
- (6) To promote metrology and to ensure traceability of their measurements to SI standards;
- (7) To ensure the training of instrument specialists and technicians through national and regional training programmes, as required;

Requests the Secretary-General,

- (1) To take necessary actions to assist WMO bodies, including CIMO, in the coordination and implementation of the Instruments and Methods of Observation Programme;
- (2) To make steps towards the partial funding of the instrument intercomparisons within the regular WMO budget;
- (3) To assist Members, as necessary, in overcoming difficulties which may arise in the implementation of the IMOP Programme;
- (4) To assist the Executive Council, the regional associations and the Commission in the implementation of this resolution;
- (5) To report to Sixteenth Congress on the progress achieved and to submit proposals for the future activities.

Note: This resolution replaces Resolution 4 (Cg-XIV), which is no longer in force.

World Meteorological Organization

FIFTEENTH CONGRESS

GENEVA, 2007



Cg-XV/Rep. 3.1.5

Submitted by:

Secretary-General,
President of CIMO

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3.1.5

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REPORT OF THE PRESIDENT OF CIMO**

PROGRESS/ACTIVITY REPORT

SUMMARY

Reference: Cg-XV/Doc. 3.1.5

CONTENT OF DOCUMENT:

Appendix:

- The report of the president of CIMO

THE REPORT OF THE PRESIDENT OF CIMO

1. Seventeen technical reports related to standardization of instruments and observing methods and the use and maintenance of instruments and systems were published in the intersessional period. Members can use these in the routine operation of their observation networks to improve the performance and sustainability of their networks.
2. The 7th edition of the *Guide to Meteorological Instruments and Methods of Observation* (CIMO Guide) was prepared through the effort of 42 experts from 17 countries and adopted by CIMO-XIV. Through these and past efforts the CIMO Guide now has a wider recognition and use by both Members and manufacturers.
3. CIMO addressed the problem of worldwide traceability of measurements to System International (SI) standards. Many Members either do not regularly calibrate their field instruments or do not link their working standards with international standards. There is a significant risk that measurements from such networks can degrade the quality of data assimilation into NWP models and, in turn, the quality of NWP forecasts. Also, research studies attempting to find weak climate change and variability signals based on these measurements are jeopardized.
4. A major step forward was done in strengthening the Regional Instrument and Regional Radiation Centres (RICs, RRCs). According to revised Terms of Reference, the RICs and RRCs must have the necessary facilities and laboratory equipment to perform the functions necessary for the calibration of meteorological and related environmental instruments. They must also maintain a set of meteorological standard instruments and establish traceability of measurement standards and measuring instruments to the SI. In addition RICs and RRCs may provide calibration services to those Members that cannot afford to build their own calibration laboratories at a marginal cost to those charged by the National Metrology Institute, if it exists at a national level. Therefore, the RICs, RRCs are critical to Members in guaranteeing traceability of data to SI, especially for developing countries.
5. Instrument Intercomparison is a unique and cost-effective tool establishing a link between measurements of instruments from different manufacturers. This has a significant implication on data compatibility and accuracy – and, in turn, can affect weather forecast and warning accuracies and climate research (both variability and change). Through instrument intercomparisons hidden flaws and faults in design and reading of instruments are identified and fixed, thus improving sensor performance and, in turn, data quality; this, in turn, affects quality of products and services provided by Members to users.
6. Three instrument intercomparisons that were conducted in the intersessional period: (a) WMO Laboratory Intercomparison of Rainfall Intensity (RI) Gauges, (The Netherlands, Italy, France; September 2004-September 2005); (b) WMO Intercomparison of High Quality Radiosonde Systems, Vacoas, Mauritius, 2-25 February 2005; and (c) The Tenth International Pyrheliometer Comparison and conjointly organized Regional Pyrheliometer Comparisons, Davos, Switzerland, 26 September–14 October 2005. Preparations were made for holding the WMO Field Intercomparison on RI Instruments (Vigna di Valle, Italy, 2007/2008); and WMO Combined Intercomparison of Thermometer Screens/Shields in conjunction with Humidity Measuring Instruments (Ghardaïa, Algeria, 2007/2008). CIMO-XIV agreed on a preliminary list of urgently needed instrument intercomparisons to be implemented in collaboration with other interested parties in the next period.
7. Significant achievements were done in training of instrument specialists. Two hundred and thirty-five persons were trained through 10 training workshops on instruments and observing methods in the areas of upper-air observations, metrology and calibration.

8. At CIMO-XIV, Dr John Nash (UK) and Mr Rainer Dombrowsky (USA) were elected as president and vice-president of the Commission, respectively.
