



WORLD WEATHER WATCH

Instruments and
Methods of Observation ProgrammeCommission for Instruments and
Methods of Observation***CIMO Newsletter***<http://www.wmo.int/web/www/CIMO/newsletters.html>

DECEMBER 2006

The CIMO Newsletter is intended as a complementary means of keeping informed CIMO members and affiliates and getting them involved in the work of the Commission by reporting on its activities and other related organizational matters, meetings, publications, etc. Comments from the readers are welcome.

In order to keep the list of CIMO members in WMO Publication No. 5 up-to-date we urge WMO Member countries to inform the Secretariat promptly of changes concerning the designation of their representatives to CIMO. Thank you.

With this issue, we take the opportunity to convey to all of you our best wishes for a happy holiday season and a prosperous year 2007!

Bonne et heureuse année! ~ Feliz año nuevo! ~ С Новым Годом!

CIMO-XIV (Geneva, 7-14 December 2006)**Major Outcomes**

The fourteenth session of the Commission for Instruments and Methods of Observation (CIMO-XIV) was held in Geneva, Switzerland, from 7 to 14 December 2006. A total of 109 participants from 50 countries and four international organizations participated in CIMO-XIV. The session was opened by Dr Ray Canterford, acting president of CIMO. WMO Secretary-General, Mr Michel Jarraud, made the opening statement.

The Commission agreed that the standardization is a key area of CIMO activities and that the current trend in preparation of technical advice to Members should continue. Seventeen (17) technical reports were elaborated in the intersessional period related to standardization of instruments and observing methods and to use and maintenance of instruments and systems. Members can use those in the routine operation of their observation networks to improve the performance and sustainability of their networks.

The 7th edition of the CIMO Guide was prepared through the effort of 42 experts from 17 countries and adopted by the Session. Some of the key issues were addressed in the new edition, such as the automation of visual observations, including digital cameras and image recognition technology. Through these and past efforts the guide now has a wider recognition and use by manufacturers through its link on the HMEI website. CIMO Guide is the only and 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. CIMO Guide is used by Members as one of the basic quality documents when acquiring the ISO 9001 and 17025; it is important to keep it up-to-date and make it widely available. The Commission requested the Secretary-General to publish the electronic versions of the CIMO-Guide on WMO website.

The CIMO members were in agreement that the international standardization of meteorological instruments, related measurements and observations is a precondition for accurate and reliable data sets.

It agreed that the development of new sensors and instrumentation, including the inexpensive and durable instrumentation for use in developing countries, more robust sensors suitable for harsh environments, as well as the development of new automatic observing techniques, especially for visual and subjective observations, are becoming more and more important. The Commission has committed to stimulating efforts focused on the production of meteorological instruments of improved accuracy, stability, and reliability but not necessarily, at higher cost, such as more cost-effective and interoperable technology for upper-air soundings. The Commission endorsed efforts in strengthening its relationship with standardization bodies, such as ISO and BIPM.

The Commission recognized the importance of accuracy, reliability and long-term stability of data for all WMO Programmes, but especially for use by the Climate community in monitoring climate variability and climate change as well as monitoring extreme events in support of the Natural Disaster Prevention and Mitigation Program. Only through worldwide traceability of measurements to System International (SI) standards can observation quality meet the standards required by users, such as climate research. Many Members either do not regularly calibrate their field instruments or do not link their working standards with international standards. There is 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. The CIMO stressed that if further improvement in the accuracy is to be achieved by the Members, it can best be accomplished through metrology, a science of measurements, and CIMO needs to bring this issue to the attention of WMO Members so that they can obtain best possible results from their current national observing systems that would stimulate further improvements in their product and services to users.

The Commission noted that difficulties in linking NMHSs' working standards with international standards may be overcome through the strengthened Regional Instrument and Regional Radiation Centres (RICs, RRCs). 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 National Metrology institutes, if exists on national level. Therefore, the RICs, RRCs are critical to Members in guaranteeing traceability of data to SI, especially for developing countries. The Commission strongly encouraged that these centers should be significantly strengthened to offer required services to their Members and that funding sources should be identified and sought to address the needs of the RICs and RRCs.

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. The Commission session 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. The Commission agreed on a preliminary list of urgently needed instrument intercomparison to be implemented in collaboration with other interested parties. However, the funding of intercomparisons has been a long-standing issue and should be addressed by the WMO so that at least partial funding is made available in the regular WMO budget for this important activity, as requested by EC-LVII.

The interaction and collaboration with HMEI was strengthened. Such collaboration has been documented within each expert team and more so within intercomparisons; where not only have they provided their equipment for comparisons but have recognized and accepted the results, resulting in sensor modification. In addition to these efforts HMEI members have shared in providing training to developing countries. It is through such collaborative efforts that CIMO has become more effective and this is evidenced through the many suggestions from the Members for HMEI to become more involved in the Commission's work.

The Commission paid great attention to the enhancement, renovation and integration of observing technologies and networks. The members presented a strong message for the need to link observational data assimilation directly to NWP models. It was also identified that integration of observing systems on data level often creates incompatible data sets that influence the final quality of products and services to users; therefore, integration of different observing networks should be based on technology rather on data level. The Commission believes this should become the corner stone for a WMO integrated global observing system

Significant decisions were made regarding other areas that crosscut in a fashion similar to CIMO, these included the WMO Quality Management Framework, the Disaster Prevention and Mitigation, and the Global Earth Observation System of Systems. It was clear from the discussions that these crosscutting programs were of utmost importance in CIMO's future activities

The Commission agreed to continue in the current trend in building the capacities of Members. It 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. In the intersessional period, 235 trainees were trained through 10 training workshops on instruments and observing methods

Dr John Nash (UK) and Mr Rainer Dombrowsky (USA) were declared elected by acclamation as president and vice-president of the Commission, respectively. We wish them every success with these new challenges.

Dr Ray Canterford (Australia) who had been acting president of CIMO since June 2003 has recently changed responsibilities within the Bureau of Meteorology. We wish to thank him for his excellent achievements as acting president, and take the opportunity to wish him all the best in his new responsibilities.

OPEN PROGRAMME AREA GROUPS and CIMO-MG

Fourth CIMO-MG session

The fourth session of the CIMO Management Group (MG-4) met in Geneva on 14 December 2006, following the closure of CIMO-XIV. MG-4 focused on the composition of the Expert Teams, priority tasks related to their terms of reference and on a milestone plan of CIMO activities for the intersessional period. Following the activation of the Expert Teams by the Secretariat through the relevant Permanent Representatives of Members with WMO, the members will be informed and the information will be posted on the CIMO/IMOP website. See CIMO-MG-4 Final Report for more details:

<http://www.wmo.int/web/www/IMOP/reports.html>

TECO-2006

The WMO Technical Conference on Meteorological and Environmental Instruments and Methods of Observation (TECO-2006) was held in Geneva from 4 to 6 December 2006. 189 experts from 61 countries discussed 126 papers and posters presented under the theme "*Innovations in observing systems and practices to meet the evolving needs of members*". It was opened by the acting president of CIMO, Dr R. P. Canterford.

Conference sessions concerned new developments and operational experience in surface and upper-air observation technology and networks; quality management, calibration and testing; technology transfer; capacity building; and development of Regional Instrument Centres. A final session of discussion identified the evolving needs of members, in order to guide the deliberations of CIMO-IV.

There was a clear emphasis on better meeting user's needs and tailoring data specifications and delivery to match requirements. Several papers addressed disaster prevention and mitigation (DPM) issues and described highly integrated solutions, while others described technological advances in remote sensing and integrated sounding systems. Many examples were given of the planning, enhancement,

renovation and integration of surface and upper-air networks. Renovation gave opportunities to build quality measures in at source, increase efficiency and provide new data complexes for NWP modelling.

Participants learned that data was becoming available from a wide range of sources, some from new technologies, some from agencies or the public where quality control was informal, so that issues of representativeness, consistent data series and traceability were paramount, particularly for the climate community. On the other hand, it was recognized that the NWP community desired adaptive networks and rapid assimilation of new and high-density data sources.

Results of important intercomparisons on rainfall intensity measurement and the 10th International Pyrheliometer Comparisons were reported. Concern was voiced about the traceability of the accuracy of hydrometeorological data worldwide. Proposals were made for the capacity building of Regional Instrument Centres so that they might better support the calibration work of NMHSs in their Region.

Participants heard excellent presentations on capacity building training events for radar radiosonde and AWS technicians and on GUAN / VCP projects for upgrading upper-air stations. The need for training and resources at RICs for calibration of instruments was identified as a pressing issue. There were positive collaborations with members of the Association of Hydro-Meteorological Equipment Industry (HMEI) in making instruments available for intercomparisons and in assistance with training events.

CIMO was challenged to attend to all of its Terms of Reference, to identify the operational areas of all WMO programmes where it is required to give expert support, and to improve liaison with the scientific community.

TECO-2006 papers and posters were published on a CD-ROM, as Instruments and Observing Methods (IOM) Report No. 94, WMO/TD No. 1354. The IOM Report was provided to every participant and it is also available on the WMO website:

<http://www.wmo.int/web/www/IMOP/publications-IOM-series.html>.

Meetings and Reports on the Web

For upcoming meetings: <http://www.wmo.int/web/www/IMOP/meetings.html>
For the final reports: <http://www.wmo.int/web/www/IMOP/reports.html>
CIMO/IMOP website: <http://www.wmo.int/web/www/IMOP/IMOP-home.html>

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Newsletter Note

The CIMO Newsletter is issued at least twice a year and is distributed by e-mail to CIMO members and affiliates, including the Hydro-Meteorological Equipment Industry Association (HMEI), the International Bureau of Weights and Measures (BIPM) and other international organizations, provided that the e-mail addresses are known to the Secretariat.

The contents of this Newsletter may be forwarded to other persons interested in contributing to the work of CIMO, or interested in receiving information on its activities.

Information on the implementation of the Instruments and Methods of Observation Programme as well as on the work of the Commission for Instruments and Methods of Observation, is regularly posted on the WWW website, under the heading CIMO home, at:

<http://www.wmo.int/web/www/www.html>