**STATEMENT AT THE OPENING OF THE FOURTEENTH SESSION OF THE COMMISSION FOR INSTRUMENTS AND METHODS OF OBSERVATION**

**by**

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**(Geneva, 7 December 2006)**

**Dr Ray Canterford, acting president of the Commission for Instruments and Methods of Observation,**
**Dr John Nash, vice-president of the Commission for Instruments and Methods of Observation,**
**Representatives of Members and partner organizations,**
**Distinguished Colleagues and Participants,**
**Ladies and Gentlemen,**

It is a pleasure for me to address the opening of the fourteenth session of the World Meteorological Organization (WMO) Commission for Instruments and Methods of Observation (CIMO). On behalf of WMO and my own, I wish to express my appreciation to the acting president of CIMO, Dr Ray Canterford, for his leadership of the Commission and for the outstanding work accomplished since the thirteenth session of CIMO, which was held in Slovakia, in 2002.

My thanks also go to Dr John Nash, vice-president of the Commission, as well as to the chairpersons and members of the CIMO Management Group, the three Open Programme Area Groups and the Expert Teams, for their critical contributions to the work of the Commission during the same period. Additionally, I wish to extend a warm welcome to the representatives of our Members, our partner organizations and the community of instrument manufacturers and providers, and to all participants in this session.

**Mr President, Dear Colleagues, Ladies and Gentlemen,**

The promotion of the standardization of meteorological and related observations is firmly established in Article 2 of the WMO Convention and the individual terms of reference of the Commission are very clearly laid out in the General Regulations of the Organization. CIMO has played a key role at the forefront of knowledge and scientific and technical developments.

Even before the beginning of recorded history, human beings were already speculating upon the nature of weather, while deriving their hypothesis inductively on the basis of primitive observations. However, once Aristotle had written his Meteorologica, around the year 340 BC, a mixture of deductive speculation and astrology largely supplanted any kind of empirical observation until the seventeenth century. Therefore, although some simple weather instruments can be found in ancient cultures, particularly those designed to determine rainfall, it was not until the seventeenth and eighteenth centuries that the antecessors of our modern instruments were developed: the thermometer, the barometer and the hygrometer, through pioneering work of men whose names were Galileo, Hooke, Newton, Torricelli, Bernoulli, Leibniz, Lambert, De Luc and De Saussure, among others.

Many of these men also made observations, although most of these were scattered and fragmentary, but in 1663 Robert Hooke actually proposed a systematic observing programme advocating that observations should be made upon significant changes in the weather conditions, rather than at predefined times. Moreover, in terms of observing networks, the Societas Meteorologica Palatina was founded in Mannheim, in 1780, by Elector Karl Theodor. For the first time, observations were made with compatible instruments at coincident times. The results were recorded in the Ephemeriden series of volumes. When Alexander von Humboldt created comparative meteorology in 1817, the Mannheimer documents were to be his main source.

During the past intersessional period, the work of the Commission has focused on the implementation of the relevant parts of the WMO Fifth and Sixth Long-term Plans, specifically in terms of the Instruments and Methods of Observation Programme (IMOP) and on its further development as a comprehensive and credible programme established to ensure accuracy, worldwide data compatibility and long-term stability of the WMO Integrated Observing Systems (IOS). I wish to recall that this was indeed noted by the fifty-eighth session of the WMO Executive Council, which was held in Geneva in June this year, in its reiteration of the importance of CIMO as a cornerstone of WMO and in noting the essential role of IMOP for addressing a number of important tasks that are truly critical to the other technical commissions and to WMO's crosscutting programmes.

I am therefore very pleased to stress that the new working structure of CIMO, as implemented by its thirteenth session, is indeed responsive to the needs of our Members and to those of our user community. The Commission's programme activities and deliverables have increased significantly on account of a flexible working structure based on Open Programme Area Groups and their expert teams. At the same time, I would like to stress the need for closer interaction with the Regional Associations and to encourage an increased participation of experts from the developing countries.

Along the intersessional period, through calibrations and effective intercomparisons, there has been significant improvement in the quality, reliability and compatibility of instruments, particularly with respect to radiosondes, rain gauges and pyrheliometers. In addition, the provision of technical

assistance and training to developing countries, the release of timely technical publications and the organizing of technical conferences and instrument exhibitions have also provided important benefits to WMO's Members.

**Mr President, Ladies and Gentlemen,**

Please allow me now to comment briefly on some other achievements made by the Commission during its intersessional period, with special emphasis on CIMO's instrument intercomparison and capacity building efforts. In the first of these areas, I will recall that the WMO Intercomparisons of High Quality Radiosonde Systems, the WMO Laboratory Intercomparison of Rainfall Intensity Gauges, the tenth International Pyrheliometer Comparison (IPC-X) and Regional Pyrheliometer Comparisons were carried out successfully, providing many positive results that have contributed substantially to improving the homogeneity and compatibility of measurements, as well as to the quality and availability of observational data.

In this respect, a marked improvement has been achieved since 2001 in terms of system performance of high quality radiosondes, which resulted in a CIMO recommendation calling for a combination of high quality radiosondes to be used for referencing climate-related and especially Global Climate Observing System-oriented purposes. Moreover, the geometric and geopotential height values obtained from GPS determinations proved to be of analogous accuracy as those obtained from pressure sensor measurements, which should lead to a future reduction in the cost of radiosondes. As a result, the compatibility of radiosonde data from high quality radiosonde systems has improved significantly.

The Laboratory Intercomparison of Rainfall Intensity Gauges has also led to the use of new standardized procedures to obtain equally calibrated instruments capable of providing compatible measurements, as well as new standards for reference instruments and procedures to be used by Members in their field calibrations.

The Regional Instrument Centres and the Regional Radiation Centres play a significant role in assisting Members to calibrate their standard instruments. In addition, determination of the radiation budget, which is fundamental to the understanding of the Earth's climatic system, requires very homogeneous solar radiation measurements to be made in all parts of the world. To guarantee the desired level of quality in radiation data, the tenth International Pyrheliometer Comparison (IPC-X) was held at the World Radiation Centre (WRC) in Davos, Switzerland, in September and October 2005, which resulted in the calibration of 89 pyrheliometers from 16 Regional Radiation Centres and 23 National Radiation Centres, as well as 11 international organizations.

Moreover, training continues to be important for ensuring the uninterrupted operation of instruments, generation of quality data and for assuring traceability of measurements to international standards. Significant advances have been made in terms of capacity building and training in the fields of instruments and methods of observation. Following the identification of some major gaps, the Commission embarked upon vigorous training in upper-air observations, metrology and calibration issues. In total, eight training workshops were organized, either at a regional scale or globally.

Significant work was also done in the preparation of technical reports and guidance documents on instruments and observing practices. Since CIMO-XIII, 18 technical reports have been published under the Instruments and Observing Methods Report series. In addition, the *Guide to Meteorological Instruments and Methods of Observation* was updated and a preliminary release of its seventh edition was made available to Members.

**Mr President, Ladies and Gentlemen,**

I would now like to focus on four individual topics that, I believe, are worthy of special attention:

Firstly, through its Resolution 27 (Cg-XIV), the Fourteenth World Meteorological Congress (Geneva, May 2003) decided that WMO should work towards a Quality Management Framework (QMF) for National Meteorological Services (NMSs). Such a framework would involve both an overall strategy for WMO and the implementation of quality management systems by its Members. Furthermore, it would also demand a policy and the specification of each constituent body's role in the QMF implementation process, so that quality management guidance would have to be provided at the highest level of the Technical Regulations. The upcoming Fifteenth Congress (Geneva, May 2007) will have to address this important issue, so I wish to invite you to provide Congress with all the relevant information and, if appropriate, to review the CIMO Guide and to develop the necessary procedures for your Commission.

Secondly, a basic principle to guarantee minimum required data quality, including worldwide compatibility and homogeneity, is to assure the traceability of all measurements to the standards of the International System of Units (SI). This can only be achieved through a hierarchic traceability of network measurements to the world standards, which involves the regular calibration of field instruments to be made against standards maintained by the National Meteorological and Hydrological Services (NMHSs) and their regular comparison, through an unbroken chain of national, regional and international comparisons, with the applicable world standards. I would therefore invite the Commission to consider developing a harmonized policy on traceability for WMO Members, through which each one would be able to demonstrate that calibration of his basic meteorological instruments, and hence the measurement results generated thereby, are indeed traceable to the relevant SI standards.

Thirdly, I believe that a sound policy at the regional level would contribute greatly to strengthening the capacities of the NMHSs in the area of instruments and methods of observation, especially for the developing countries, countries with economies in transition and the Least Developed Countries (LDCs). Through the efforts of the CIMO Management Group, some Regional Instrument and Regional Radiation Centres in the developing countries have been capable of organizing CIMO training events and even to take an active part in providing the training. It would therefore also be important for CIMO to provide assistance to these centres in building their own calibration laboratories and in implementing their Quality Assurance and Quality Control systems, which would also require regular evaluation to ensure that they are indeed maintaining their capabilities.

Lastly, the fifty-eighth session of the Executive Council has agreed on a conceptual framework for the preparation of the WMO Strategic Plan 2008-2011, which shall provide our long-term perspective, planning structure and strategic analysis. The WMO Strategic Plan will be linked to the objectives of the Organization through a set of expected results and key performance indicators, to be used in measuring progress being made. These parameters shall be realistic, achievable, unambiguous and in optimum number. This session of the Commission should therefore consider providing the CIMO contribution to the preparation of the WMO Strategic Plan and possibly decide on the need for its own strategic plan, which would be used to identify CIMO-specific objectives, expected results and performance indicators.

**Mr President, Distinguished Delegates, Ladies and Gentlemen**

In closing, I would like to stress that along the last intersessional period, CIMO has been very proactive in fostering collaboration with other technical commissions, the relevant international organizations and the private instrument sector, in order to promote increased standardization and compatibility in instruments and methods of observation. I am therefore pleased to note that considerable progress has been made in enhancing WMO's collaboration with the International Organization for Standardization (ISO), the International Committee for Weights and Measures (CIPM), the Association of Hydro-Meteorological Equipment Industry (HMEI), EUMETNET and the European Cooperation in the Field of Scientific and Technical Research (COST). In this regard, it should be emphasized that 51 experts from other technical commissions and the above-mentioned organizations have participated in the work of CIMO's expert teams during the intersessional period.

Given the wide range of topics and tasks to be taken up by this session of the Commission for Instruments and Methods of Observation, I would not wish to take up any more of your time, but rather to assure you of my personal support to the work of the Commission. Due to my other commitments, it will not be possible for me to be with you throughout the session, so I have designated Dr John Hayes, Director of the World Weather Watch Department, as my representative during your session, and other senior Secretariat staff will assist him in fulfilling this responsibility. I look forward to the decisions and

recommendations of the session on its various agenda items and I am confident that your deliberations will be conducted in the traditional spirit of cooperation and mutual understanding that has always been the hallmark of WMO and its constituent body sessions.

I wish you all an enjoyable stay in Geneva and a most successful and productive meeting.

Thank you.

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