



World Meteorological Organization
Organisation météorologique mondiale

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Weather • Climate • Water
Temps • Climat • Eau

Our ref.: OBS/IMOP/CIMO-16/Experts

GENEVA, 11 June 2014

Annexes: 3 (available in English only)

Subject: Preparations for the sixteenth session of the Commission for Instruments and Methods of Observation (CIMO-16), St. Petersburg, Russian Federation 10-16 July 2014 - Proposal of Experts for CIMO Expert Teams

Action required: To submit to the WMO Secretariat before **27 June 2014**, a completed form for each of the candidate experts from your country, proposed to be considered for nomination to serve as members of the CIMO Expert Teams, Task Teams or as Theme Leaders

Dear Sir/Madam,

The Commission for Instruments and Methods of Observation (CIMO) organizes its work under Open Programme Area Groups (OPAGs). Draft resolutions are being submitted to CIMO-16 for the re-establishment of three OPAGs addressing issues related to: In Situ Technologies and Intercomparisons; Remote-Sensing Technologies; and Capacity Development and Operational Metrology. Major activities of the Commission will then be carried out by either small task-focused teams of experts or by theme leaders.

The CIMO Management Group, at its eleventh session (15-19 February 2014, Payerne Switzerland), considered the numerous tasks that will need to be accomplished during the Commission's next intersessional period and is proposing to CIMO-16 a new working structure (see Annex I). In Annex II, you will find the Preliminary Terms of Reference for each Expert Team, Task Team and Theme Leader, while the draft work plans are provided in the document CIMO-16/INF. 9(3), which is available on the CIMO-16 website at:

<http://cimo-16.wmo.int/information-papers-e-f>

The WMO Secretariat hereby seeks from WMO Members the nomination of candidates who are willing to work within the CIMO Expert Teams, Task Teams or as Theme Leaders.

To: Permanent Representatives (or Directors of Meteorological or Hydrometeorological Services) of Members of WMO (PR-6775)

cc: Hydrological Advisers to Permanent Representatives

Potential candidates should be made aware that becoming a member of an Expert Team, Task Team or a Theme Leader implies a commitment in terms of time required to complete the tasks assigned to them. For example, the Chairperson of an expert team would need to commit up to 15 days/year; a member of an expert team or a theme leader up to 10 days/year; and other experts between 5 and 10 days in a year. Also, in this regard, relevant recommendations of EC-LX for the nomination of experts are provided in Annex III - Volunteerism in the Work of Technical Commissions and Regional Associations.

Since Expert Teams comprise a small number of nominated members, these members are identified through a selection process, based on the candidates' experience and expertise. Please note that each of the experts nominated by you is kindly requested to fill out on-line and then print out the electronic version of a survey form available at:

https://www.surveymonkey.com/s/CIMO_Expert_Nomination_Form,

to provide detailed information on their contact details, personal experience and qualifications, and a description of their potential contribution to achieving the objectives of CIMO, in order to support a selection process.

The paper copies of the completed forms, once signed by you, should be sent to the WMO Secretariat, preferably by e-mail to ratkinson@wmo.int, or by fax to: +(41 22) 730 8021, as soon as possible but not later than **27 June 2014**, in order to ensure that the information will be available for consideration during CIMO-16, when the nomination of the Chairpersons of the Expert Teams, Task Teams and of the Theme Leaders will take place.

I wish to take this opportunity to express my appreciation for your continued contribution to WMO, and the activities of its Instruments and Methods of Observation Programme.

Yours faithfully,

A handwritten signature in blue ink, consisting of a stylized 'J' followed by a long, sweeping horizontal line that extends to the right.

(J. Lengoasa)
for the Secretary-General

ANTICIPATED WORKING AREAS OF CIMO IN 2014-2018

A. OPAG ON IN SITU TECHNOLOGIES AND INTERCOMPARISONS

- A.1 Expert Team on Operational In Situ Technologies
- A.2 Expert Team on Developments in In Situ Technologies
- A.3 Expert Team on Instrument Intercomparisons
- A.4 Expert Team on Aircraft-Based Observations
- A.5 Task Team on Radiation References

B. OPAG ON REMOTE-SENSING TECHNOLOGIES

- B.1 Expert Team on Operational Remote-Sensing Technologies
- B.2 Expert Team on New Remote-Sensing Technologies
- B.3 Theme Leader on Radio-Frequency Protection

C. OPAG ON CAPACITY DEVELOPMENT AND OPERATIONAL METROLOGY

- C.1 Expert Team on Operational Metrology
 - C.2 CIMO Editorial Board
 - C.3 Theme Leader on Radiosonde Performance Monitoring
 - C.4 Task Team on the International Cloud Atlas
 - C.5 Task Team on Competencies
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WORLD METEOROLOGICAL ORGANIZATION
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OBS/IMOP/CIMO-16/Experts, ANNEX II

**PRELIMINARY TERMS OF REFERENCE OF EXPERT TEAMS, TASK TEAMS
AND FOR THEME LEADERS**

(see CIMO-16/Doc. 9(1))

TERMS OF REFERENCE OF EXPERT TEAMS, THEME LEADERS AND TASK TEAMS

A. OPAG ON SITU TECHNOLOGIES AND INTERCOMPARISONS

A.1 Expert Team on Operational In Situ Technologies

1. Provide specifications for instruments and observing systems in order to meet requirements from Members for the measurement of meteorological, climatological, related geophysical and environmental variables.
2. Review, develop and update guidance material and standards related to instruments and methods of observation, including identification of standards for inclusion in the CIMO Guide. Ensure that the identification and development of these standards will be pursued in cooperation with other international standardization organizations, such as ISO and BIPM, where appropriate.
3. Review outcomes of the Testbed(s) and/or Lead Centre(s) assigned to this Expert Team, and coordinate inclusion of guidance material in IOM reports and the CIMO Guide among others on: standard procedures for all aspects of instrument use and operation; advice related to instrument use, operation, testing, verification and calibration; and the calculation of uncertainty for their operational measurements.
4. Formulate proposals for improving the interoperability of instruments in support of cost-effective operations in WIGOS.
5. Develop proposals for metadata standards to be disseminated through WIS as required by WIGOS.
6. Provide relevant CIMO advice to ICG-WIGOS on the design, development and maintenance of the WIGOS Standards of Observations Reference Tool (SORT).
7. Develop further basic procedures for quality assurance and management of observations, instrument maintenance, calibration and operation within WIGOS.
8. Coordinate with other technical commissions and WMO Programmes such as GFCS and DRR in reviewing siting, performance, classifications and metadata standards for operational in situ systems and individual sensors.
9. Develop guidance and training material relevant to the ET ToRs, including proposals for updates of/new chapters for the CIMO Guide.
10. Propose to the CIMO MG the establishment of Task Teams to address specific tasks, as appropriate, monitor Task Team work progress and report to the CIMO MG.

A.2 Expert Team on Developments in In Situ Technologies

1. Review and publish performance results and recommendations relating to state-of-the-art of operational instruments, their calibration and methods of observation and their observing system supporting infrastructure.
2. Monitor and report on progress in development and performance of new surface and upper-air observation technologies and measurement techniques.
3. Review outcomes of the Testbed(s) and/or Lead Centre(s) assigned to this Expert Team, and coordinate inclusion of guidance material in IOM reports and the CIMO Guide.
4. In view of the increased impact of extreme weather and/or climatic events, review and make proposals on:
 - Development of more robust instruments with greater resilience to extreme weather conditions and combinations of weather conditions;
 - Development of instruments with increased measuring range;
 - Performance of instruments in extreme climatic conditions.
5. Monitor progress and develop guidance material on the use of observing technologies associated with sustaining AWS network operations, including in extreme climate conditions.
6. Review development of new radiation reference instruments and update relevant guidance material.
7. Develop automated methods, standards and essential criteria for real-time integrated monitoring of surface-based operational instruments performances; and liaise with other WMO Programmes contributing to WIGOS to provide them with systematic performance results by series of reports.
8. Develop guidance and training material relevant to the ET ToRs, including proposals for updates of/new chapters for the CIMO Guide.
9. Propose to the CIMO MG the establishment of Task Teams to address specific tasks, as appropriate, monitor Task Team work progress and report to the CIMO MG.

A.3 Expert Team on Instrument Intercomparisons

1. Prepare and prioritize proposals for instrument intercomparisons (in situ surface, upper-air and marine) according to the CIMO Provisional Programme (2015–2018) and available funds, in particular taking into account the requirements of WIGOS.
2. Propose the membership of International Organizing Committees. These will appoint a Project Leader responsible for conducting a specific instrument intercomparison.
3. Plan, coordinate implementation, review and evaluate global and regional intercomparisons of instruments and methods of observation in collaboration with relevant manufacturers and the Hydro-Meteorological Equipment Industry Association (HMEI).
4. Develop guidance material relevant to the ET ToRs, including proposals for updates of/new chapters for the CIMO Guide.
5. Monitor progress of International Intercomparisons through the work of their International Organizing Committees and project teams.

A.4 Expert Team on Aircraft-Based Observations

1. Develop and manage the workplan and associated activities of the expert team, including the budget for associated expenditure of the AMDAR Trust Fund in line with the Trust Fund's Terms of Reference and in collaboration with the CBS Expert Team on Aircraft-Based Observing Systems (ET-ABO).
2. Oversee and report to the Commission on the scientific and technical development of aircraft-based observing systems, including AMDAR, Mode-S, ICAO ADS and TAMDAR, particularly with respect to instruments and methods of observation.
3. Coordinate and report to the Commission on the development, scientific testing, validation and intercomparison of existing and new methods of observation for aircraft-based observing systems, including humidity, turbulence and ice accretion.
4. Organize and conduct the development, maintenance and provision of technical standards and specifications associated with aircraft-based observations and according to user requirements.
5. Review outcomes of the Testbed(s) and/or Lead Centre(s) assigned to this Expert Team, and coordinate inclusion of guidance material in IOM reports and the CIMO Guide.
6. Compile and review updates and new material on aircraft-based observations for inclusion in the CIMO Guide and other WMO regulatory documents.
7. Conduct and provide support for training and outreach activities of the Commission and WMO to support the use of aircraft-based observations.
8. Work in collaboration and cooperation with other teams of the Commission and WMO on the above activities as appropriate and as necessary (in particular with the Expert Team on Instrument Intercomparisons).
9. Propose to the CIMO MG the establishment of Task Teams to address specific tasks, as appropriate, monitor Task Team work progress and report to the CIMO MG.

A.5 Task Team on Radiation References

To address implications of proposed changes to the solar and terrestrial radiation references, by:

1. Reviewing and reporting to the CIMO MG on the recent developments of reference instruments for solar and terrestrial radiation with regard to observed differences to references currently in use.
2. Assessing potential impact and consequences of a change in solar/terrestrial reference scales for Stakeholder.
3. Making recommendation on requirements and timeliness for a modification of the current references, and if required develop an implementation plan for the change (including proposing how to deal with old data and timelines for its introduction).
4. Providing regular progress reports to the CIMO MG and recommendations for adoption by CIMO-17 (2018).

B. OPAG ON REMOTE-SENSING TECHNOLOGIES

B.1 Expert Team on Operational Remote-Sensing Technologies

ET will work on operational weather radars, wind profilers and lightning detection systems:

1. Review operation of current instrumentation identifying best practices, including instrument specifications, and siting (including network support infrastructure and preventive maintenance).
2. Review quality control procedures including standardization, calibration, signal processing, algorithms and product generation in close collaboration with users.
3. Review outcomes of Testbed(s) and/or Lead Centre(s), if assigned to this Expert Team, and coordinate inclusion of best practices and guidance material in IOM reports and the CIMO Guide.
4. Facilitate activities associated with improving remote-sensing operations by initiating workshops on performance evaluation and product interpretation.
5. Review data exchange technologies and recommend mechanisms noting advantages and disadvantages of WIS.
6. Develop guidance material relevant to the ET ToRs, including proposals for updates of/new chapters for the CIMO Guide.
7. Review and update training material in support of OPAG Capacity Development and Operational Metrology.
8. Propose to the CIMO MG the establishment of Task Teams to address specific tasks, as appropriate, monitor Task Team work progress and report to the CIMO MG.

B.2 Expert Team on New Remote-Sensing Technologies

1. Monitor, evaluate and report on development and implementation of:
 - Microwave radiometers, especially the quality of temperature measurements in the planetary boundary layer;
 - GPS water vapour networks and quality of data in suitable intercomparison with other systems including radiosonde and microwave radiometer;
 - Raman water vapour lidar and specifically quality of absolute humidity measurements in the troposphere;
 - Meteorological lidar systems;
 - Cloud radars;
 - Instruments for the operational aerosol and volcanic ash measurements;
 - Other new technologies, such as meteor scattering radars.
2. Review outcomes of Testbed(s) and/or Lead Centre(s), if assigned to this Expert team, and coordinate inclusion of guidance material in IOM reports and the CIMO Guide among other on:
 - The performance of new surface based remote-sensing technology, including strengths and weaknesses, accuracy, reliability and cost effectiveness;

- The principles for the optimal mix of surface based in situ and remote-sensing systems (interoperability) to improve both temporal and spatial capabilities for future operational upper air networks.
3. Develop guidance material relevant to the ET ToRs, including proposals for updates of/new chapters for the CIMO Guide.
 4. Review and update existing training material and support the OPAG on Capacity Development and Operational Metrology in the production of suitable training workshops, reference material, guidelines and standards for all operational aspects of remote-sensing systems (except those covered by the CIMO ET Operational Remote-Sensing Technologies).
 5. Propose to the CIMO MG the establishment of Task Teams to address specific tasks, as appropriate, monitor Task Team work progress and report to the CIMO MG.

B.3 Theme Leader on Radio-Frequency Protection

1. Consider within CIMO issues related to radio-frequency protection activities for all operational surface-based (in situ and remote-sensing) observing systems (radiosondes, weather radars, wind profilers, microwave radiometers, etc.).
2. Liaise with all CIMO Expert Teams in a view to collect and coordinate their requirements and consider WMO positions developed by CBS Steering Group on Radio-Frequency Coordination (SG-RFC).
3. Liaise with CBS SG-RFC providing CIMO input on its requirements and expertise and supporting SG-RFC to maintain a WMO strategy for ensuring availability of radio-frequencies for meteorological applications.
4. Propose to the CIMO MG the establishment of Task Teams to address specific tasks, as appropriate, monitor Task Team work progress and report to the CIMO MG.

C. OPAG ON CAPACITY DEVELOPMENT AND OPERATIONAL METROLOGY

C.1 Expert Team on Operational Metrology

1. Develop a strategy and provide guidance towards ensuring worldwide traceability of measurements to the International System of Units (SI), including outreach material to sensitize Members on the need for and importance of instrument calibration and measurements traceability.
2. Promote further the partnership between RICs of developing and developed countries and encourage Members to use the system of internship in RICs in the various WMO Regions.
3. Strengthen the Quality Assurance of the RICs/RRCs as a crosscutting issue involving the regional and technical cooperation activities by:
 - Collaborating with RICs to define RIC functional capabilities;
 - Encouraging RICs to organize and/or participate in interlaboratory comparisons;
 - Providing support in RIC evaluations;
 - Monitoring the RIC capabilities based on their yearly reports and 5-year evaluation and inform presidents of RAs;
 - Providing advice for certification and accreditation of RICs;
 - Monitoring RRC capabilities, provide support to RRC evaluations;

- Developing guidance to improve RRC capabilities and the quality and traceability of radiation measurements in national radiation networks;
 - Encouraging RRCs to organize regional intercomparisons and to further support National Radiation Centres (NRCs);
 - Collaborating with Regional Marine Instrumentation Centres (RMICs).
4. With respect to capacity development, review and provide guidance to develop the IMOP capacities of developing countries, in particular the development and fabrication of instruments, and the transitioning from instruments that contain dangerous substances or may become obsolete, to more modern alternatives.
 5. Encourage RICs to enhance their activities on developing training material and holding training workshops in their Regions on calibration and traceability, including computation of measurement uncertainty.
 6. Develop guidance and training material relevant to the ET ToRs, including proposals for updates of/new chapters for the CIMO Guide.
 7. Support RICs/RRCs in improving their visibility through WMO/IMOP website and facilitating outreach material and information exchange between RICs/RRCs and Members of the Regions.
 8. Propose to the CIMO MG the establishment of Task Teams to address specific tasks, as appropriate, monitor Task Team work progress and report to the CIMO MG.

C.2 CIMO Editorial Board

1. Coordinate activities for the periodic updating of the CIMO Guide, in collaboration with CIMO OPAGs, ETs, HMEI and the WMO Secretariat, namely:
 - Revise guidelines for the updating of the CIMO Guide to ensure the uniformity of its presentation;
 - Identify the way of reorganizing the content of some chapters to present preferred technologies first, followed by those less recommended.
 - Collect proposals from user community for updates and revisions;
 - Identify areas to be updated, revised or completely rewritten and advise the CIMO MG;
 - Identify experts for updating/revision of the relevant parts of the CIMO Guide and advise the CIMO MG;
 - Coordinate the work of experts on revisions to the CIMO Guide;
 - Arrange for approval of the updated/revised parts of the CIMO Guide according to a procedure approved by the CIMO MG;
 - Provide updates/revisions in a form of track changes for consideration by the CIMO MG and approval by the president of CIMO or the Commission;
 - Provide regular reports to the CIMO MG and the WMO Secretariat;
2. Monitor the contents of the CIMO Guide for material that might be progressively transferred to the Manual on WIGOS and develop a method to ensure consistency between the WIGOS regulatory material and the CIMO Guide as standards mature.
3. Review proposals for and manage review and revision of draft IOM reports.
4. Review proposals for and advise ETs on the development of common ISO/WMO standards.
5. Contribute to the development of the Guide to WIGOS and Manual on WIGOS, as appropriate.

C.3 Theme Leader on Radiosonde Performance Monitoring

1. Arrange for the production of monitoring reports on the systematic performances of radiosonde networks in WIGOS (Radiosonde catalogue and statistics).
2. Liaise with Members and CBS and HMEI on performance issues identified above.
3. Develop guidance material relevant to the TL ToRs, including proposals for updates of/new chapters for the CIMO Guide.

C.4 Task Team on the International Cloud Atlas

Update and digitize the WMO International Cloud Atlas (ICA) by:

1. Identifying needs for new/replacement imagery and metadata;
2. Developing new glossary, classification, images and metadata template required for Volumes 1 and 2;
3. Developing fully updated new Edition of the ICA
4. Designing web-based ICA and preparing all text, images and metadata for web format;
5. Building the website and ensuring its functionality.;

C.5 Task Team on Competencies

Develop documents describing competencies for staff making meteorological measurements and observations, and performing maintenance and calibration of instruments for use as guidance by NMHSs and training institutes:

1. Review existing relevant material and examples;
 2. Develop competencies for meteorological measurements and observations, as well as calibration and maintenance of instruments;
 3. Liaise with EC Panel of Experts on Education and Training on consideration of any other matters relating to developing competencies towards following similar approach as used by other WMO Technical Commissions and Programmes;
 4. Finalize and publishing the documents;
 5. Prepare guidelines on their effective implementation;
 6. Arrange for inclusion of competencies in the CIMO Guide, if appropriate, or making recommendations an independent publication.
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**VOLUNTEERISM IN THE WORK OF
TECHNICAL COMMISSIONS AND REGIONAL ASSOCIATIONS**

Annex to Resolution 4 (EC-LX)

General

It is recognized that volunteerism plays an important role in the Technical Commissions (TCs) and Regional Associations (RAs) subsidiary bodies.

Recommendations

The following is recommended as per nominations, performance monitoring and recognition in order to improve the current situation with volunteerism, especially the declining number of volunteers:

Nominations:

- That WMO work be better advertised and promoted within NMHSs and other Weather - Climate - Water - Environment communities, in order to ensure contributions from a wide spectra of expertise, and appropriate geographic coverage;
- That prospective candidate experts and their PRs should be aware of responsibilities and commitments, especially as far as coordination and participation is concerned;
- That in seeking nomination for membership in TC and RA subsidiary bodies, especially prior to a constituent body session, for the procedure to ensure that the commitment of the PRs and the proposed experts are confirmed, as well as the availability of the professional profile, through a brief CV of the latter, to help ascertain their specific expertise, and willingness to contribute; and that Nomination Committees are established early enough to have time to look at all experts' personal information prior to constituent body session;
- That team members should be chosen in such a way that their volunteer work corresponds to their daily activities in their home institutions;
- That if time and opportunity allow, the list of proposed names has been agreed at regional level by the president of the RA prior to submission to the Nomination Committees, when possible;
- That an indication of time commitment (e.g. in terms of minimum percentage of overall activity or time slots) might be useful for the agreement of the PR to secure the necessary time for WMO work;
- That PRs should provide complete and up-to-date expert details, especially working e-mail addresses, to facilitate establishing subsidiary bodies;
- That candidate experts not selected by Nomination Committees should be informed, thanked, and encouraged to apply again to some other WMO work.

Performance monitoring:

- That WMO Secretariat manage the organization of subsidiary body meetings as early as possible within the intersessional period, in order to finalize action plans drafted following e-mail communication or teleconferences, and that the budget is setup accordingly, and in order to have work assigned appropriately;
- That evaluation of each subsidiary body and involved experts be conducted by the appropriate Chairs according to the rules of results-based management, in particular to decide on the continuation of an entity or the membership of an expert, taking into consideration the need for a balance between continuity and new activities and experts. This evaluation is also important for experts involved, especially for the recognition of their work by their PR;

- That should an expert not contribute on the expected level, or in case of a totally silent expert, there should be a mechanism (e.g. led by Management Groups or relevant OPAGs) known to all appointed experts allowing for their replacement, e.g. after 1 year of insufficient contribution;
- That peer-reviewed reports produced should be published as soon as possible, at least at subsidiary body websites, preferably in appropriate publication series with names of contributors, for monitoring purposes and in order to recognize the work of the authors.

Recognition:

- That PRs should give recognition of conducted work for WMO activities. As in most NMHSs an individual evaluation procedure is in place for rating staff members, the contribution to WMO work should be included in the list of criteria used;
 - That other incentives are needed, such as issuing certificates or addressing letters of appreciation to experts concerned, with copy to their PR. This should be made generally at TC or RA president level, following proposals by OPAG or WG Chairs. Applicable rules should be established by WMO, and templates should be designed.
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