

**WMO OMM**

World Meteorological Organization  
Organisation météorologique mondiale  
Organización Meteorológica Mundial  
Всемирная метеорологическая организация  
المنظمة العالمية للأرصاد الجوية  
世界气象组织

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Annex: 1

Subject: Regional Instrument Centre Consultation Workshop, preceded by a Training Workshop on Calibration of Meteorological Instruments and Uncertainty Calculation (11 to 14 December 2023)

Action required: To notify the WMO Secretariat whether a representative from your Regional Instrument Centre will be able to participate in these workshops remotely, at your earliest convenience but not later than **20 November 2023**

Dear Sir/Madam,

I am pleased to inform you that the World Meteorological Organization (WMO) is organizing a one-day Regional Instrument Centre (RIC) Consultation Workshop, on 14 December 2023 that will aim at strengthening collaboration between RICs, identifying the main challenges faced by RICs in supporting the Members of their Region, identifying possible ways to strengthen their support, and/or envisage other strategies to improve the quality of observations.

The workshop will be preceded by a "Training Workshop on Calibration of Meteorological Instruments and Uncertainty Calculation" for Members of WMO Regional Association I. The training workshop will be held in English at the RIC Cairo, from 11 to 13 December 2023.

Arrangements for online participation will be made to enable attendance from RIC representatives from other Regional Associations.

The Training Workshop on Calibration of Meteorological Instruments and Uncertainty Calculation aims to improve the skills of participants of Members of RA I which already have calibration laboratories, in particular related to the understanding measurement uncertainty.

The training workshop will cover general topics such as metrology in meteorology, terminology and vocabularies and will have a particular focus on calibration procedures and computation of calibration uncertainties for temperature, pressure and humidity sensors. It will also deal with the calibration practices and uncertainty computation related to precipitation and wind sensors in a simpler manner.

The Annex contains the preliminary programme for the course, which will last three days and will comprise theoretical lessons and practical exercises on uncertainty budget computation. Most of the course will be held in a classroom. Arrangements will be made for visits to the RIC Cairo laboratories, providing an opportunity to contextualize the lectures within the laboratory environment.

To: Permanent Representatives of Argentina, Australia, Barbados, China, Philippines, and Slovakia with WMO (limited distribution)

Each participant is invited to bring to the workshop the documentation of the instrument calibration procedures in use in his/her laboratory and, if available, an example of uncertainty calculation for one of the variables measured in his or her laboratory. At the end of the course, the expert you designate should in turn carry out a training activity at the national level and report the results to the WMO Secretariat.

I would like to invite you to nominate an English speaking representative from your RIC, preferably the RIC focal point, to take part in the RIC Consultation Workshop on 14 December 2023.

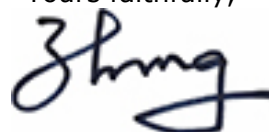
I should be grateful if the nomination of your expert(s) would include the following details: first name, family name, job title, institution, email address. Nominations should be sent to the WMO Secretariat ([WMOsecretariat@wmo.int](mailto:WMOsecretariat@wmo.int)) at your earliest convenience, but **no later than 20 November 2023**.

Please also indicate whether your expert would like to attend the Training Workshop on Calibration of Meteorological Instruments and Uncertainty Calculation from 11 to 13 December 2023. Participants in this training should have in-depth knowledge of the laboratory procedures in place in your RIC.

Participants in the training workshop, when nominated, are kindly requested to complete the [online Nomination Form](#). WMO will make arrangements for remote connection to the event for your expert, as far as possible.

Once an expert from your RIC has been designated, we will contact the expert directly to make any additional arrangements for remote participation in these events.

Yours faithfully,



Dr Wenjian Zhang  
for the Secretary-General

**TENTATIVE PROGRAMME**  
**TRAINING WORKSHOP**  
**ON CALIBRATION OF METEOROLOGICAL INSTRUMENTS AND**  
**UNCERTAINTY CALCULATION**

**for Members of WMO Regional Association I**

**11 to 13 December 2023**

**Cairo, Egypt**

- General principles of metrology
  - Metrology in meteorology
  - Measurement terminology and the vocabulary of metrology
  - Introduction to measurement uncertainty
  - Calibration of thermometers – procedures and related uncertainty budgets
  - Calibration of pressure sensors – procedures and related uncertainty budgets
  - Calibration of relative humidity sensors – procedures and related uncertainty budgets
  - Calibration of precipitation gauges – procedures and related uncertainty budgets
  - Calibration of wind sensors – procedures and related uncertainty budgets
  - Exercises related to computation of uncertainty budgets
  - Visit to RIC Cairo
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