WMO OMM
World Meteorological Organization
Organisation météorologique mondiale
Organización Meteorológica Mundial
Всемирная метеорологическая организация
المنظمة العالمية للأرصاد الجوية
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Our ref.: 6789583/2026/ESDP/MINT 2 November 2026

Annex: 1

Subject: Online training course on weather radar calibration, monitoring and maintenance organized by the WMO Measurement Lead Centre, Changsha

Dear Sir/Madam,

I am pleased to inform you that the World Meteorological Organization (WMO) Measurement Lead Centre, Changsha, China, will conduct an online training course on weather radar calibration, monitoring and maintenance, from 7 to 11 December 2026.

This training is based on the *Guide to Operational Weather Radar Best Practices (Volume V: Weather Radar Calibration, Monitoring and Maintenance)*, (WMO-No. 1257) and focuses on the full technical chain of weather radar calibration, real-time monitoring, and equipment maintenance.

The course adopts a teaching model combining theoretical lectures, practical pre-recorded demonstration videos, data review, and case-based discussions, enabling participants to systematically understand the complete set of technical methods, from hardware calibration to data quality assessment. It is intended to support improvements in the reliability and consistency of national weather radar observations.

The training course has been developed by the WMO Measurement Lead Centre, Changsha, and will be delivered online 2 hours per day over 5 days, from 7 to 11 December 2026. The instructions to join the online training will be sent to the registered participants. The training course will be delivered in English. Details of the course are available in the annex.

The training is intended particularly for:

- Personnel responsible for the operation, maintenance, management, and technical support of weather radar systems;
- Professional engineers engaged in radar equipment testing and calibration;
- Personnel involved in weather radar data quality control and product development;
- Researchers and practitioners working on new technologies for weather radar observations.

Participants are requested to register using the following link to join the training course:

Registration Form
Online Training on weather radar calibration, monitoring and maintenance

To: Permanent Representatives of Members with WMO

cc: Hydrological Advisers

Members are kindly invited to encourage relevant personnel to register for the course and benefit from the training. For further information, please contact the WMO Secretariat (Dr Bibraj Raj braj@wmo.int). I would appreciate your assistance in disseminating this information within and beyond your Service and encouraging participation in the training course.

Yours faithfully,



Ms Ko Barrett
for the Secretary-General

COURSE DETAILS

7–11 December 2026

(0800 UTC–1000 UTC/Language: English)

MODULE I	**Fundamentals of Radar Calibration and Best Practices (2 hours)**

Learning objectives:

Upon completion of this module, participants will be able to:

- Understand the main contents of the WMO Guide to Best Practices for Weather Radar
- Understand the basic principles of weather radar systems and the physical meaning of key parameters in the radar equation
- Gain an overview of the development of weather radar calibration technologies worldwide
- Become familiar with weather radar calibration practices in China

Course content:

- Opening remarks and introduction to the course and schedule (10 min)
- Overview of the WMO Guide to Best Practices for Weather Radar (20 min)
- Principles of weather radar systems and an overview of global developments in radar calibration technologies (60 min)
- Weather radar calibration practices in China (30 min)

MODULE II	**Calibration Techniques – Hardware Calibration (Static Calibration) (2 hours)**

Learning objectives:

Upon completion of this module, participants will be able to:

- Understand methods for testing key parameters of weather radar transmit and receive systems
- Become familiar with far-field testing methods for weather radar antennas
- Understand verification and calibration methods for parameter retrieval algorithms in radar signal processors
- Understand the principles and practical application of weather radar calibration using a metal sphere suspended from an unmanned aerial vehicle

Course content:

- Instrument-based testing methods and practical applications for key parameters of weather radar transmit and receive systems (30 min)
- Far-field testing methods and applications for weather radar antennas (30 min)
- Verification and calibration methods for parameter retrieval algorithms in radar signal processors (30 min)
- Weather radar calibration using a metal sphere suspended from an unmanned aerial vehicle (30 min)

MODULE III	Online Monitoring Techniques (Dynamic Verification) (4 hours)

Learning objectives:

Upon completion of this module, participants will be able to:

- Understand the main methods used for online monitoring and dynamic verification of weather radar systems
- Become familiar with internal monitoring, solar calibration, and ground clutter monitoring techniques
- Understand precipitation-based calibration and monitoring techniques for differential reflectivity
- Understand reflectivity consistency verification between spaceborne precipitation radars and ground-based weather radars
- Understand comparative verification methods between neighbouring weather radars
- Become familiar with weather radar data quality assessment methods

Course content:

- Internal monitoring methods and technologies (30 min)
- Solar calibration and monitoring technologies (30 min)
- Ground clutter monitoring technologies (30 min)
- Precipitation-based differential reflectivity calibration and monitoring technologies (30 min)
- Reflectivity consistency verification between spaceborne precipitation radars and ground-based weather radars (30 min)
- Comparative verification between neighbouring weather radars (30 min)
- Weather radar data quality assessment methods (60 min)

MODULE IV:	Standardized Maintenance (2 hours)

Learning objectives:

Upon completion of this module, participants will be able to:

- Understand the procedures and requirements for preventive maintenance of weather radar systems
- Understand the procedures and requirements for calibration maintenance
- Become familiar with typical operational cases related to weather radar maintenance and calibration
- Improve their understanding of the practical implementation of radar maintenance and calibration activities

Course content:

- Procedures and standards for preventive maintenance and calibration maintenance of weather radar systems (60 min)
- Demonstration of typical operational cases (60 min)

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