

## **P-10: RECENT NORMATIVE DEVELOPMENTS ON THE CALIBRATION OF NON-CATCHING PRECIPITATION MEASURING INSTRUMENTS**

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Specific testing and measurement requirements for non-catching instruments used to measure liquid/solid atmospheric precipitation were submitted in October 2017 by CEN TC318 to EURAMET (European Association of National Metrology Institutes) through the cooperation programme between STAIR (the joint CEN-CENELEC strategic Working Group supporting standardization in research and innovation) and EMPIR, the European Metrology Programme for Innovation and Research of EURAMET. The need for research on this subject was also presented at the 3rd STAIR-EMPIR workshop “From metrology research to standardisation”, CEN-CENELEC Meeting Centre, Brussels, 10 October 2017.

Indeed, the coverage of the existing EN17277:2019 (still in preparation at that time) is limited to catching gauges, which – due to the presence of the rain collector – can be calibrated using a known flow rate generated in the laboratory as the reference. However, non-catching instruments are increasingly addressed and employed by national weather services, due to the lower maintenance required and unattended operation capabilities. Beyond the new published norm for catching type gauges, traceable instrument calibration methods for non-catching gauges are being developed and could be incorporated into suitable Standards.

The pre-normative joint research project “INCIPIT – Calibration and accuracy of non-catching instruments to measure liquid/solid atmospheric precipitation” (2019-2022) was therefore funded by the European Metrology Programme for Research and Innovation (EMPIR) of EURAMET, including the following partners: INRiM (Italy – coordinator), SMD (Belgium), CEM (Spain), DMI (Denmark), University of Genova (Italy) and MétéoSwiss (Switzerland). The World Meteorological Organization was a partner of this project, acting as “Chief Stakeholder” since the project was addressed to deliver normative proposal and recommendations for calibration of meteorological instruments.

The present work describes the recent development of the process of including results from the INCIPIT project into normative documents at the European scale. Indeed, the technical report including the state-of-the-art in calibration of non-catching instruments was submitted to CEN/TC 318 (Hydrometry) /WG12 (Rainfall Intensity), as a draft Technical Report, and is now in the balloting phase. Also, recommended procedures for the traceable calibration of non-catching precipitation gauges, their testing and maintenance, were submitted to the same committee as a proposal for a new norm, and the text is under preparation at CEN at the time of writing. Guidelines were also submitted to the WMO expert team Surface and sub-surface, Measurement Uncertainties and Quality, Traceability and Calibration.