METROLOGY FOR **CLIMATE ACTION**

Bureau International des Poids et Mesures



26-30 SEPTEMBER 2022

BAROMETER CALIBRATION IN LARGE SIZE BAROMETRIC CHAMBER

Mayckol Jesid Morales Castro¹, Daniel Fernando Tique Rojas² <u>1mmorales@inm.gov.co</u> Instituto Nacional de Metrología de Colombia <u>2dtique@ideam.gov.co</u> Instituto de Hidrología, Meteorología y Estudios Ambientales

September 2022

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The standard calibration procedure for barometer is performed by increasing and decreasing pressures measuring series[1].

This leads to an increase of uncertainty due to the reference value repeatability, for the INM barometric chamber ~ 0.1 hPa.



Error and Recorded data for 2h at ~1050 hPa (Left) and for 30h at ~750 hPa (Right).

We put the barometric chamber at a specific value of pressure between the range of 400 hPa to 1100 hPa, leaving them by no less than two hours and recording the pressure on the instruments every 60s. The difference between the pressures is the calibration error.

EURAMET, 'Guidelines on the Calibration of Electromechanical Manometers', EURAMET cg-17, 4th ed., 2019.
WMO, Guide to Meteorological Instruments and Methods of Observation, WMO-No. 8, 17th ed., 2018.





Standard Calibration (purple) VS new approach process (blue)

This new calibration approach allowed us to have a significantly decrease in the uncertainty and a better reproducibility of the measured values.

Also will allow us to know characteristics of the devices, including their time-constants and ensure that the data gathered will adequately reflect the local changes in the atmospheric pressure.