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**“Metrology meeting the challenges in energy, environment and health”**

**Challenges related to remote sensing and traceability of atmospheric measurement quantities: the view from WMO CIMO and its implication for a National Meteorological Service**

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Requirements for high quality observational data and their world-wide compatibility is a governing principle for WMO the World Meteorological Organization. This is obtained by defining technical standards, conducting instrument inter-comparisons, testing and calibration and implementing quality control procedures. These responsibilities are assigned to CIMO the Commission for Instruments and Methods of Observations. Over the last decades CIMO significantly expanded its task to cope with the fast development of measuring technology, so that traceability of measurements to the International System of Units (SI) could be guaranteed.

On-going work in CIMO will be highlighted with its direct implications for a National Meteorological Service and a special focus on remote sensing methods of observation. This talk is intended to foster the debate around the requirements and links between meteorology and metrology.

It may be summarized in the form of a “simple” question and answer:

Q: Is it true that a temperature measurement of 20 °C from one place and from one point in time can be compared to an identical measurement from a different location and/or time?

A: Only if each temperature measurement is metrologically traceable to a common standard. (Brochure distributed at WMO Congress 17th, Geneva 2015, “Metrological Traceability for Meteorology”)