

Metrology for Meteorology and Climate

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Abstract. For a few years now, a fruitful collaboration has been growing between the metrology and meteorology communities. A key event was the signing of the CIPM¹ Mutual Recognition Arrangement by WMO² on 1st April 2010. The main need expressed by top level stakeholders was for the availability of robust data for meteorological studies and for the benefit of the present and future generations of climatologists. This was translated by the metrology community into two key objectives: traceability and uncertainty.

Essential Climate Variables (ECVs), as defined by GCOS³, are continuously recorded by a multitude of different sensors on satellites, balloon radiosondes, aircraft, surface weather stations, buoys, and deep sea devices; all of them working in different operating environments and affected by different influence quantities. All those ECVs are of interest and competence for the metrology community and most of them can be considered as interdisciplinary and multidisciplinary research areas. As an example, the inclusion of measurement uncertainty in present, historical and future temperature data series represents a fundamental step towards greater public confidence in evaluations of climate change.

This talk reports on the challenges and opportunities opened in recent years for the metrology community in establishing permanent and long lasting cooperation with the climatology and meteorology communities. A general vision on the creation of ad hoc task groups, addressing the several aspects of metrology for environmental sciences, is also discussed.

¹ Comité international des poids et mesures – (International Committee for Weights and Measures)

² World Meteorological Organisation

³ WMO Global Climate Observing Systems