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AN OVERVIEW OF ACTIONS AND RESEARCH FOR IMPROVING DATA QUALITY IN METEOROLOGY AND CLIMATOLOGY.

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In meteorology and climatology several factors contribute to the overall uncertainty budget of single records as well as for data series. At present, knowledge is not complete, guides are sometimes too generic and prescribe over estimation to stay “on the safe side”, instrumentation is produced in such a diversity of technical solutions to require specific analysis and comparisons, effects of field conditions are not easy to numerically evaluate and correct for or include at calibration process. Even the same definition of the measurand poses problems. Examples involving thermal quantities are here reported.

Aware of this, discussion is now growing in World Meteorological Organization expert teams, in the Global Climate Observing System, in the Global Cryosphere Watch and in the BIPM Consultative Committees working and task groups. The main goal is identify the outstanding problems and contribute addressing their solution. A gap analysis process is presented in this contribution.

Recent research initiatives have already delivered important results and methods to improve the identification and evaluation of uncertainties, which together with the BIPM, WMO, JCGM joint actions all show the growing interest and efforts in improving data quality by understanding and evaluating uncertainties in measurements. An extended collaborative process, where users, manufacturers, national institutes and services all contribute to increase scientific and technical knowledge is here proposed, for future supervision and coordination by international Institutions such as the WMO and BIPM.