Thermometry, Humidity and Thermophysical Quantities

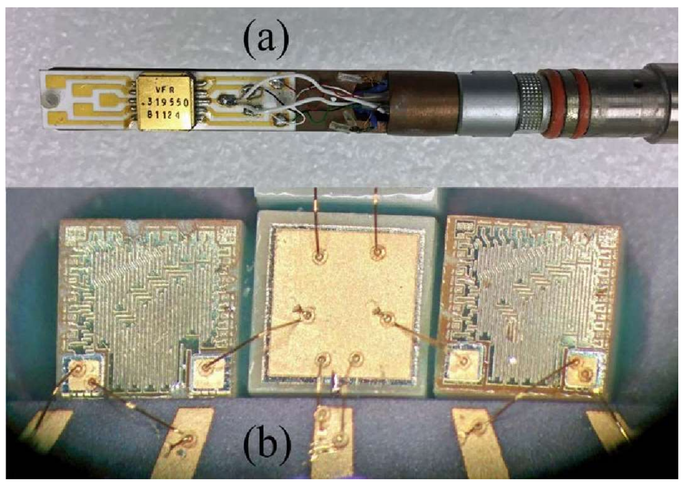
The Consultative Committee for Thermometry (CCT)

Any technology depends on reliable temperature and/or humidity measurements

The CCT provides a global forum for NMIs

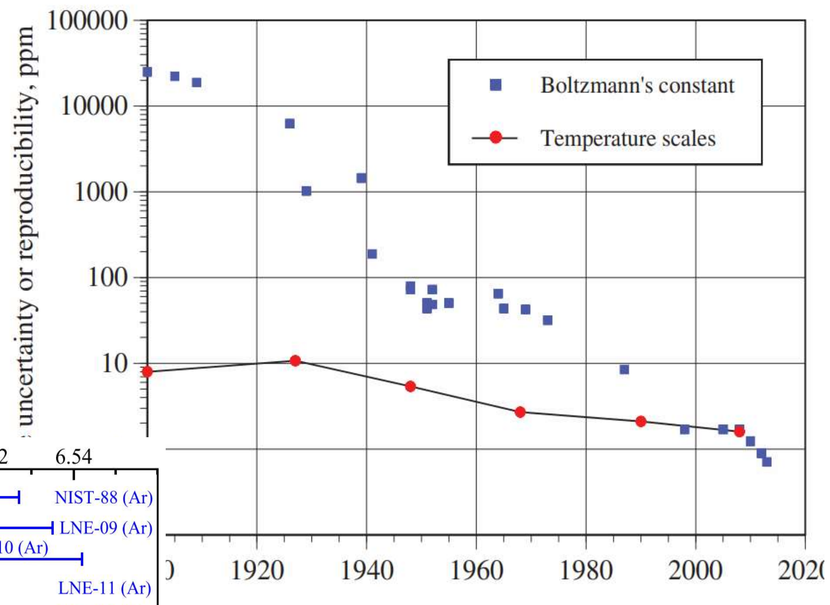
on best practices and state of the art on measurements of temperature, humidity and thermophysical quantities.

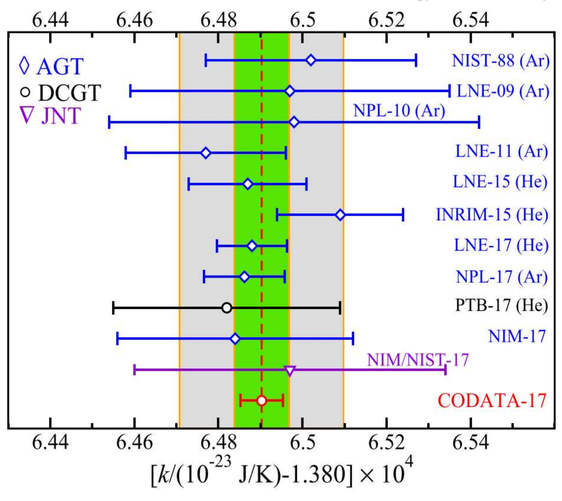
The redefinition of the kelvin *is a recent example of successful coordination. High-precision measurements using different techniques have allowed the determination of a robust value for the* **Boltzmann constant *k***. This result would not have been achieved without **international collaboration**.



Images courtesy of NPL (UK), NIST (USA), 2nd Univ. of Naples (Italy), PTB (Germany)

The perfect time to redefine…





For the first time the determination of the Boltzmann constant is of higher precision than the applied temperature scale.

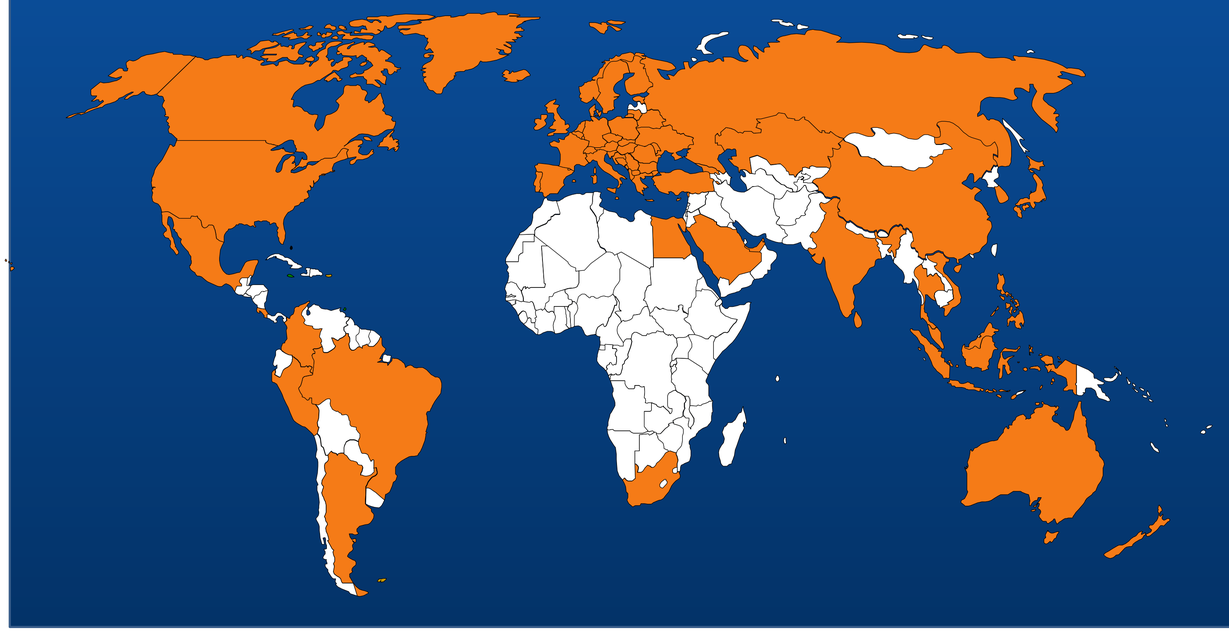
A **NEW** stable reference from extreme cold to extreme heat is provided for future generations

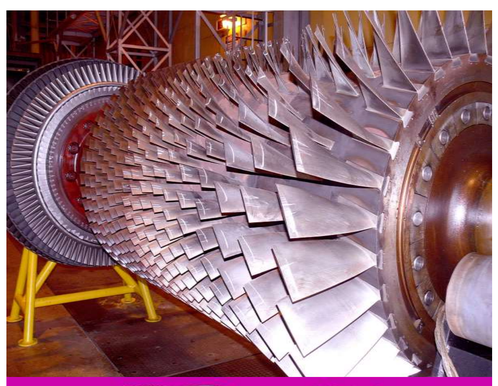
$k = 1.380\,649\ 10^{-23}$ J/K

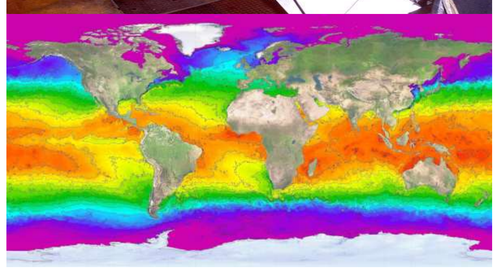
The CCT has defined a strategic set of key comparisons

to demonstrate and improve global comparability for themometry with traceability to the SI.

An example of outreach is the CCT KC of Standard Platinum Resistance Thermometers







The CCT closely monitors new and emerging technologies that may have a global impact on future thermometry measurements and calibration.

Self-calibrating thermal sensors, integrated small-size optical components, temperature-induced control of gene expression and tumour metabolism …