



Which hygrometer for AMDAR?

H.G.J. Smit (1), A. Volz-Thomas (1), A. Hoff (2) and R.L. Jones (3)

(1) Institute of Chemistry and Dynamics of the Geosphere 2: Troposphere (ICG-2), Research Centre Juelich (FZJ), D-52425 Juelich, Germany (e-mail: h.smit@fz-juelich.de), (2) German Weather Service (DWD), Offenbach, Germany, (3) University of Cambridge (UCAM), Cambridge, United Kingdom

Water vapor is one of the most important parameters in weather and climate. Accurate and intensive monitoring of humidity will considerably improve numerical weather and climate prediction. It is therefore of great interest to implement automatic humidity sensors onboard the fleet of commercial aircraft supplied with the AMDAR (Aircraft Meteorological DATA Relay) system as part of the synoptic network for weather prediction. Although real time measurements of humidity from in-service aircraft have a high priority for AMDAR, the sensors tested so far are not proven to fulfill the criteria for long term routine operation.

We have reviewed candidate water vapour systems that might be capable to meet the requirements for in-service operation onboard of commercial aircraft. Besides of WVSS II (Spectra Sensors Inc., USA), which actually is subject of tests in the USA and in Germany, the performance characteristics of other existing compact aeronautical humidity sensors like the MOZAIC-Humidity Device (MHD) as well as of a few new instrumental developments will be discussed. In this context we will present a plan for selecting the best hygrometer for AMDAR operation based on testing in the laboratory and during in-flight operation.