THE CHILLED-MIRROR HUMIDITY SENSOR:

IMPROVED RADIOSONDE MEASUREMENTS

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Chilled-mirror humidity sensor technology recently was adapted for use with the VIZ radiosonde. The principle of the chilled-mirror operation is to lower its temperature until dew forms on the mirror, at that point the dew point temperature is noted and the mirror is then heated to evaporate the moisture. The cycle is repeated. Research conducted from NASA's Wallops Flight Facility has provided comparisons between the chilled-mirror sensor and the carbon hygristor of VIZ, and the capacitive sensors of AIR, Inc. and Vaisala Co. We believe the chilled-mirror sensor is accurate and would serve as a reference standard for evaluating operational radiosonde relative humidity sensors. Thus, differences seen in the comparisons are beginning to furnish insight into developing better humidity sensors. We discuss these comparison results as well as reproducibility results from a dual chilled-mirror measurement.