



The University of Colorado Balloon Borne Cryogenic Frostpoint Hygrometer (CFH)

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The cryogenic frostpoint hygrometer (CFH) built at the University of Colorado is a new lightweight balloon borne instrument, which is capable of continuously measuring water vapor between the surface and the middle stratosphere. It is loosely based on the old NOAA/CMDL frost point hygrometer, with improved accuracy and a number of significant new features, which overcome some of the limitations of the old NOAA/CMDL instrument.

This instrument is used routinely at several sites for validation of satellite measurements and process studies in the upper troposphere and lower stratosphere region. It is particularly suited for dehydration observations in the tropical upper troposphere, where cloud contamination has been significantly reduced. This instrument was compared with the old NOAA/CMDL hygrometer, the Russian Fast Lyman Alpha Stratospheric Hygrometer, the Vaisala RS92, the AURA/MLS satellite instrument, a cloud lidar, the new NOAA/AL frost point hygrometer and the Harvard Lyman alpha hygrometer both onboard the WB-57 high altitude research aircraft. These comparisons demonstrate the level of accuracy of water vapor measurements by this instrument.