

SPARC Water Vapor Assessment: Stratospheric measurements of water vapor by the JPL Laser Hygrometers

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The JPL Laser Hygrometers have provided airborne in-situ water vapor measurements for 13 years from several platforms, including the NASA ER-2, WB-57, DC-8, and Global Hawk. Here, we describe the instruments, retrieval algorithms, and calibration procedures. Key changes to the instruments over the years are outlined. The history of instrument performance, accuracy, and precision are summarized, both from aircraft field missions and from the AquaViT laboratory intercomparison at the AIDA chamber (2007). Measurements in 2007 and more recent have the highest accuracy, but older measurements are also assessed here.