

TITLE "AIRS In-orbit Infrared Calibration Performance"
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ABSTRACT

The Atmospheric Infrared Sounder (AIRS), launched on the Earth Observing System (EOS) Aqua platform in May, 2002, has been operating stably, in normal data acquisition mode, for five months. Based on cloud-free, sea surface temperature comparisons, the in-orbit radiometric calibration is very stable, and has been validated to an absolute accuracy of better than 0.5K, consistent with the 0.2K absolute radiometric accuracy determined pre-launch. Based on upwelling radiance spectra, the in-orbit spectral calibration is stable to better than 0.1% of the Spectral Response Function (SRF) FWHM, and has an absolute accuracy of 0.5% of the SRF FWHM. A small increase (up to 15%) in Noise Equivalent Delta Temperatures (NEdT_s) has been observed, and is consistent with a reduction in system transmission due to ice accumulation. Given the precision and stability of its measurements, AIRS should contribute significantly to both weather forecasting and climate studies.

Keywords:

Calibration, Satbility, Spectrometer