

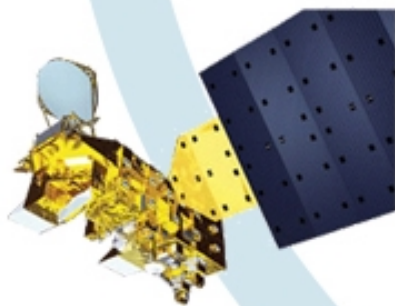
## **Atmospheric Spectroscopy with AIRS: Validation of the AIRS Forward Model**

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The high spectral resolution radiances measured with the Atmospheric Infrared Sounder (AIRS) launch on NASA's AQUA platform in May 2002 are providing a unique data set for improving our understanding of atmospheric emission spectra, which will hopefully lead to improved weather and climate products without the need for empirical tuning of these products. We have compared radiances observed with AIRS to radiances computed from ECMWF analysis/forecast products, and computed from a wide range of radiosonde measurements recorded coincident with an AIRS overpass. Our analysis of these results concentrate on clear, night, ocean conditions where the surface emissivity should be well known, and the detection of cloud-free fields-of-view is most accurate. We now have a dataset that includes large numbers of nominally clear observations over many months, allowing accurate statistical analysis, at least for the ECMWF comparisons. Results assessing the accuracy of various formulations for the water vapor continuum will be discussed, both in the atmospheric windows and inside the strong water band centered at 6.7 microns. In addition we will present analysis of the validation of the temperature sounding channels that are influenced by carbon dioxide emission.

# Proceedings of the Thirteenth International TOVS Study Conference

INTERNATIONAL  
**ATOVS**  
WORKING GROUP



Sainte-Adèle, Québec, Canada  
29 October – 4 November 2003