

Enhancements of the AIRS Eigenvector Regression Algorithm

**Lihang Zhou, Zhaohui Cheng, Thomas King, Walter Wolf,
Mitch Goldberg, Xingpin Liu Fengying Sun, Chris Barnett
and Haibing Sun**

The differences between observed and simulated AIRS spectra, acquired from validation campaigns, are very small (usually decimals of degree in brightness temperature); this encourages the development of a physically-based regression. The physical regression coefficients are derived by first acquiring an ensemble of truth data, simulating ensemble spectra with the latest AIRS science team rapid radiative transfer algorithm, and then generating the regression coefficients. The truth data is consist of a set of radiosonde/rocketsonde temperature and moisture profiles, collocated with forecast model fields as well as other routine observations. The training set is augmented with representative profiles of CO₂ and other greenhouse gases. The physically-based algorithm is tested and validated on our global multi-years re-processing dataset. Results and comparisons with the current regression algorithm will be presented.

INTERNATIONAL
ATOVS
WORKING GROUP

*Proceedings of the
Sixteenth International
TOVS Study Conference*

Angra dos Reis, Brazil

7-13 May 2008

Sharing ideas, plans and
techniques to study
the earth's weather and climate
using space-based observations

