



Climate trending using Hyperspectral Infrared PDFs

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Monitoring of the earth's longwave infrared emission spectra for both climate trending and validation of climate models is considered an important component of any earth observing system. With the recent cancellation of NASA's CLARREO satellite series, there is renewed interest in providing similar data using the operational infrared radiance record, that began with AIRS on NASA EOS/AQUA platform and is now being supplemented with IASI on METOP's and CrIS on NOAA/NASA's NPP/JPSS platforms. We will examine strategies for combining these data sets to provide a long-term homogenous radiance climate record and approaches for accurately transforming radiance trends into geophysical units. In addition, we propose using radiance probability distribution functions (PDFs) for all-sky trends and examine the AIRS 9-year PDF trends relative to those in the ECMWF ERA-Interim re-analysis computed using a fast cloudy radiative transfer algorithm.