



Dome Degradation Characterization of Wide-Field-of-View Nonscanner aboard ERBE and it's Reprocessing

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Earth Radiation Budget Experiment (ERBE) wide-field-of-view (WFOV) nonscanner on Earth Radiation Budget Satellite (ERBS), NOAA-9, and NOAA-10 provided broadband shortwave and longwave irradiances from 1985 to 1998. The measurements at satellite altitude from ERBE WFOV nonscanners are converted to top-of-atmosphere (TOA) irradiances by inversion processes. The existing inversion-processing scheme for shortwave instrument assumes a spectrally constant degradation (gray assumption) and does not consider spectral dependent shortwave dome degradation. Based on knowledge from recent developments in the CERES process, we plan to reprocess WFOV nonscanners data by characterizing the spectral dependent degradation of the shortwave dome transmissivity. The characterization of the dome transmissivity will be performed using the solar data observed by these instruments during calibration days. In addition, the existing processing does not use the scene information for individual footprints but assumes mostly cloudy over ocean for the entire observation period. In the reprocessing, we plan to use imager derived cloud fraction and the cloud phase as well as surface type over the field of view of nonscanner instruments. This presentation will briefly explain the reprocessing technique and evaluation of results by comparing the existing WFOV nonscanner data with that obtained from the new approach.