Geophysical Research Abstracts, Vol. 9, 06365, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-06365

Solar Radiation from Space: Focus on Sources of Variability between Model Estimates

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Available estimates of large or global scale distributions of radiative fluxes come from synthesis of ground observations and/or from model estimates. Several efforts are underway to use satellites for estimating radiative fluxes both at the surface and at the top of the atmosphere. In addition to the methodology used to infer such fluxes, the accuracy of the derived values depends on the quality of the satellite data, instrument calibration, spatial and temporal resolution of the satellite observations that enter the computations, representation n of aerosol effects and the spatial and temporal resolution at which these estimates are amalgamated. Under the WCRP GEWEX Radiative Flux Assessment Activity an effort is underway to compare fluxes derived by different groups and methods. Preliminary evaluations of such products indicated that differences can arise due to the approach a methodology is implemented. It is important to understand the sources of such differences and the impact they have on the accuracy of the derived information and on observed trends in satellite based estimates of radiative fluxes. In this presentation these issues will be addressed and illustrated by comparison of the shortwave UMD/SRB model results as implemented with the ISCCP D1 observations with outputs from other available models at various time scales, including decadal variability.