



Comparisons of the TOA Earth Radiation Budget Data Sets in the GEWEX-RFA Archive

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The GEWEX Radiative Flux Assessment (GEWEX-RFA) is an international scientific project commissioned by the GEWEX Radiation Panel to examine the current state of both the top of the atmosphere (TOA) and the surface Earth Radiation Budget data set and to give recommendations for future improvements of these climate data records. Earth radiation budget data producers from various institutions around the globe have responded to the GEWEX-RFA data request and submitted their scientific data set into the GEWEX-RFA archive. This presentation will focus on comparisons of the TOA Earth Radiation budget data sets in this archive at regional, zonal, tropical and global scale for the period from March 2000 to February 2005. Multi-data set ensemble mean, calculated from all available data sets in the GEWEX-RFA archive during this common period, will be used as an unbiased estimate for the current state of the TOA Earth radiation budget data set. The variables of interest include incoming solar radiation, outgoing longwave radiation, reflected shortwave radiation, and net radiation for both all-sky and clear-sky conditions. Regional and regional difference map (individual GEWEX-RFA data set minus the multi-data set ensemble mean) will be utilized to highlight regions of similarity and disagreement among these data sets. Zonal profile (mean and mean difference) will be employed to examine the representation of the north-south radiative energy gradient given by various data sets in the GEWEX-RFA archive. Tropical mean and global mean information (ensemble mean, 1-sigma, max, min, etc) will be used to summarize both the current understanding and the uncertainty associated with the TOA Earth radiation budget data set.