



Assessing long-term variability of surface radiation budget components using satellite based data sets: results from NASA/GEWEX Surface Radiation Budget project

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In the last year, multiple long-term satellite based surface radiation data sets have become available exceeding 20 years in duration. These data sets offer the first opportunity to assess long-term variability on regional and global scales compared to surface measurements. In this paper, we present the latest analysis of the NASA/GEWEX Surface Radiation Budget. This data set is now available for public access spanning the time period July 1983-December 2004. The product contains estimates of all the surface radiation components in both the shortwave and longwave wavelengths, on a nested 1 degree grid. A variety of temporal resolutions are available: 3-hourly, daily, monthly, and monthly averaged 3-hourly. This release represents the highest resolution of any long-term global radiation dataset.

The presentation will briefly overview the data set quality relative to BSRN and other surface measurements on a variety of time scales. Then, the overall annual mean and variability of the SRB components will be presented in terms means, intra-annual and inter-annual variability. This information will be compared to other available radiation data sets where appropriate. Next, the interannual variability will be shown through the time series of the various SRB components. This interannual variability will be compared to variability of the various input quantities. The variability of certain grid cells will be compared to long-term variability of surface measurements from a few selected high quality sites. Lastly, the long-term changes seen over the 20 years will be assessed in terms of their data quality and uncertainty. From this inferences will be

made about the weaknesses of the current data sets and what research is required to improve the overall quality of the data sets.

Lastly, as time permits the audience will be updated on the status of the current GEWEX Radiative Flux Assessment project representing an effort by the the global scientific community to assess satellite data sets.