



The GEWEX Surface Radiation Budget Project: Results from the 24.5 Year Data Set

Paul Stackhouse (1), Laura Hinkelman (2), Taiping Zhang (3), Stephen Cox (3), Shashi Gupta (3), and Colleen Mikovitz (3)

(1) NASA Langley Research Center, Atmospheric Science/Climate Sciences Branch, Hampton, VA, United States (paul.w.stackhouse@nasa.gov), (2) JISAO, University of Washington, Seattle, WA, USA, (3) Science Systems and Applications, Inc, Hampton, VA, USA

The NASA/GEWEX Surface Radiation Budget (SRB) project produces 3-hourly longwave and shortwave radiative fluxes on a 1x1 degree grid, using ISCCP clouds and radiances, GEOS-4 meteorology, and other inputs (<http://gewex-srb.larc.nasa.gov>). Upward and downward fluxes at the surface and top of atmosphere are produced, as well as many other parameters, including aerosol and cloud radiative forcings. The current release, Version 3.0, covers the period from July 1983 through December 2007. This data is available to the community at 3-hourly, daily, monthly, and monthly 3-hourly resolutions at http://eosweb.larc.nasa.gov/PRODOCS/srb/table_srb.html.

Here we present the latest validation results of SRB Version 3.0 against BSRN and other surface data, comparisons with other satellite radiation products, and analysis of variability over the 1983-2007 time frame. In particular, we focus upon an ensemble anomaly analysis of the data set relative to the ensemble BSRN measurements. We also compare TOA and surface radiative budget annual means, annual cycles and variability against CERES TOA and surface fluxes for the 2000 to 2007 time period. Long-term comparisons against ISCCP FD are also shown. Given these validation and comparison results, we provide an uncertainty assessment of the radiative fluxes on global and regional scales due to uncertainties in the ISCCP radiance and cloud inputs and summarize the implications for interpreting long-term changes.