



NASA/GEWEX Surface Radiation Budget: First Results From The Release 4 GEWEX Integrated Data Products

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The NASA/GEWEX Surface Radiation Budget (SRB) project produces shortwave and longwave surface and top of atmosphere radiative fluxes for the 1983-near present time period. Spatial resolution is 1 degree. The current release 3 (available at gewex-srb.larc.nasa.gov) uses the International Satellite Cloud Climatology Project (ISCCP) DX product for pixel level radiance and cloud information. This product is subsampled to 30 km. ISCCP is currently recalibrating and recomputing their entire data series, to be released as the H product, at 10km resolution. The ninefold increase in pixel number should help improve the RMS of the existing products and allow for future higher resolution SRB gridded product (e.g. 0.5 degree).

In addition to the input data improvements, several important algorithm improvements have been made. Most notable has been the adaptation of Angular Distribution Models (ADMs) from CERES to improve the initial calculation of shortwave TOA fluxes, from which the surface flux calculations follow. Other key input improvements include a detailed aerosol history using the Max Planck Institut Aerosol Climatology (MAC), temperature and moisture profiles from HIRS, and new topography, surface type, and snow/ice.

Here we present results for the improved GEWEX Shortwave and Longwave algorithm (GSW and GLW) with new ISCCP data, the various other improved input data sets and the incorporation of many additional internal SRB model improvements. As of the time of abstract submission, results from 2007 have been produced with ISCCP H availability the limiting factor. More SRB data will be produced as ISCCP reprocessing continues. The SRB data produced will be released as part of the Release 4.0 Integrated Product, recognizing the interdependence of the radiative fluxes with other GEWEX products providing estimates of the Earth's global water and energy cycle (I.e., ISCCP, SeaFlux, LandFlux, NVAP, etc.).