



## Mapping the Surface Radiation Budget with Satellite Data

E. Raschke (1) and S. Kinne (2)

(1) Scheessel, Germany (draschke@aol.com), (2) Max-Planck-Institute for Meteorology, Hamburg (Germany)

The regional and global distribution of all radiation budget components (e.g. solar and infrared broadband fluxes at the surface and the top of the atmosphere (ToA) under clear-sky and all-sky conditions) are an important aspect in the validation of cloud-properties and cloud processes in global modeling. An important and commonly applied reference form satellite-sensor based data-sets. For surface fluxes, however, satellite radiance data cannot be directly converted into broadband surface fluxes and – although constrained by ToA radiances – need to apply ancillary data and models. And inaccuracies and inconsistencies of these adopted data or models quickly propagate into derived (surface) radiative flux products.

Radiation product time-series of the three major projects ISCCP, GEWEX-SRB and CERES were compared. Significant inconsistencies were identified. Some of them can be traced to differences in ancillary data in atmosphere (e.g. aerosol, trace-gases, cloud properties) and at the surface (e.g. reflectance, temperature). These inconsistencies often exceed any accepted maximum error (of  $\pm 15 \text{ Wm}^{-2}$ ) so that meaningful trend-analyses are difficult to impossible.

Therefore, we urge to examine and unify all ancillary data prior to any re-analysis effort.