

عنوان مقاله:

(On the Accuracy of Satellite-Derived Surface Radiation Budget (Introduction to an Auxiliary Software

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خلاصه مقاله:

The derivation of energy components is one of the major mandates of the remote sensing techniques with which, the retrieval of many environmental parameters will be possible. The major energy component that strongly influences the energy balance is the sun downward energy. Indirect derivations of the energy components through satellite imageries are common on the absence of direct measurements with reliable instruments. However, there are always some uncertainties involved with satellite data. This paper presents explanation in the development of a tool for modeling the downward radiation received at the surface. Also, a software named "Sun Energy" developed by these authors to help modification of the satellite derived sun spectral irradiances will be introduced. This software will be devoted to those researchers who are retrieving information from satellite images and are anxious about decency and integrity of the data. This work focuses on the estimation of the spectral irradiance under all clear sky conditions, all kinds of atmospheric parameters and surface slopes and aspects. The model for satellite derivation of the data is based on NREL's SPECTRAL2 (Myers et.al 2003) model for clear skies which takes no account of cloud attenuation of solar radiation. Development on the original model includes modification of the aerosol model and extended work on the Dedieu (1987) for developing a physically model to derive downward solar irradiance at the surface of the earth and surface albedo from Meteosat7 satellite measurements in the wavelength between 0.3 and 4μ . The model takes into account Rayleigh and Mie scattering, water vapor and Ozone absorption. We believe that this software will help those who retrieve sun downward energies from satellite images, particularly those images with low spatial resolution. A thorough investigation needs to be carry out in the field with simultaneous in-situ measurements and satellite overpass, which this is our future intension

کلمات کلیدی:

Satellite, sun energy, diffused, irradiance , slope and aspect, atmospheric effects, software

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