MODIS and VIIRS BRDF, Albedo and NBAR Land Surface Products

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Abstract

The VIIRS BRDF, Albedo and NBAR algorithm is providing global daily products consistent with the corresponding MODIS V006 daily products. New narrow to broadband conversion coefficients have been developed to produce the broadband values most commonly measured by field instruments and used in modeling studies.

The MODIS and VIIRS products both rely on high quality, multi-date, multi-angle surface reflectances to retrieve a daily surface BRDF for each gridpoint with the use of a semi-empirical RossThickLIbSparseR (RTLSR) BRDF model. This BRDF is then used to produce White Sky Albedo (WSA, bihemispherical albedo under isotropic illumination), Black Sky Albedo (BSA, directional hemispherical albedo under local solar noon illumination) and Nadir BRDF-Adjusted Reflectance (NBAR) which are view angle corrected reflectances often used for phenological monitoring. Extensive Quality Assurance Flags are also provided to more fully describe the BRDF retrieval, and provide ancillary information such as the local solar noon zenith angle, snow condition, etc. Albedo is retrieved as either a snow albedo or a snow-free albedo quantity depending on the condition of the daily day of interest.

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