MODIS Surface Reflectance; Atmospheric Correction Algorithm Products (also called Spectral Reflectance) (MOD 09)

Product Description

The MODIS Surface-Reflectance Product (MOD 09) is computed from the MODIS Level 1B land bands 1, 2, 3, 4, 5, 6, and 7 (centered at 648 nm, 858 nm, 470 nm, 555 nm, 1240 nm, 1640 nm, and 2130 nm, respectively). The product is an estimate of the surface spectral reflectance for each band as it would have been measured at ground level if there were no atmospheric scattering or absorption.

The correction scheme includes corrections for the effect of atmospheric gases, aerosols, and thin cirrus clouds; it is applied to all noncloudy MOD 35 Level 1B pixels that pass the Level 1B quality control. The correction uses band 26 to detect cirrus cloud, water vapor from MOD 05, aerosol from MOD 04, and ozone from MOD 07; best-available climatology is used if the MODIS water vapor, aerosol, or ozone products are unavailable. Also, the correction uses MOD 43, BRDF without topography, from the previous 16-day time period for the atmosphere-BRDF coupling term.

Research and Applications

The surface-reflectance product is the input for product generation for several land products: Vegetation Indices (VIs), BRDF, thermal anomaly, snow/ice, and Fraction of Photosynthetically Active Radiation/Leaf Area Index (FPAR/LAI). It is, therefore, an important and essential product. The at-launch version will be fully operational.

Data Set Evolution

The Aqua MODIS product will be based upon the latest version of the Terra MODIS product.

Suggested Reading

Vermote, E.F. *et al.*, 1997.

MODIS Surface Reflectance; Atmospheric Correction Algorithm Products Summary

Coverage: Global land surface (Level 2)

Spatial/Temporal Characteristics: Bands 1 and 2, 250 m; bands 3-7, 500 m; daylight data only

Key Science Applications: Global climate modeling, regional climate modeling, surface-energy-balance modeling, land cover characterization

Key Geophysical Parameters: Surface reflectance

Processing Level: 2

Product Type: Standard, at-launch

Maximum File Size: 424 MB

File Frequency: 288/day

Primary Data Format: HDF-EOS

Additional Product Information: http://modis-land.gsfc.nasa.gov/mod09/

DAAC: EROS Data Center

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