



Surface UV irradiance from OMI

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Ozone Monitoring Instrument (OMI) onboard the NASA EOS Aura spacecraft (launched on July 15, 2004) is a hyperspectral (FWHM ~ 0.45 nm) UV/Vis spectrometer with a 2600 km wide swath capable of daily, global contiguous mapping. Mission requirements include monitoring of ozone and other trace gases, cloud pressure and reflectivity and aerosols. It is a contribution of the Netherlands's Agency for Aerospace Programs (NIVR) in collaboration with the Finnish Meteorological Institute (FMI) to the EOS Aura mission. OMI is the successor to the NASA TOMS instrument but with 8-fold better ground resolution (13 by 24 km in nadir) and wide spectral coverage from 270 to 500 nm.

The OMI measurements are used to estimate the ultraviolet (UV) radiation reaching the Earth's surface. Noontime surface spectral UV irradiance estimates are produced at four wavelengths (305, 310, 324, 380 nm). Additionally, noontime erythemal dose rate and the erythemal daily dose are estimated. The OMI surface UV algorithm inherits from the TOMS UV algorithm developed by NASA/GSFC. Clear-sky UV irradiances are first estimated using total column ozone and additional geophysical data. Cloud and/or non-absorbing aerosol correction to the clear-sky UV are obtained by determining the effective optical thickness at 360 nm of a plane parallel cloud model and its global transmittance at selected UV wavelengths. Moreover, the OMI surface UV algorithm accounts for absorbing aerosols in the clear-sky case using the absorbing aerosol index.

We present current status of the OMI surface UV data processing and planned validation of products with ground based UV measurements. Additionally, further development of the surface UV algorithm is discussed.