



Gridded UV Index Metadata

Dataset	
Title	Clear sky UV Index (1979-2007)
Custodian	
Custodian	Bureau of Meteorology
Jurisdiction	Australia
Description	
Abstract	UV Index provides a simple measure of the solar ultraviolet (UV) radiation level at the earth's surface. The UV Index is calculated for solar noon which is the time of daily maximum. Typical values range from zero when there is no sunlight to more than 14 on cloud-free days in summer in northern Australia. See LINEAGE below for more information.
Search Word(s)	Gridded, satellite, climatology, UV, solar, radiation, meteorology, ultraviolet
Geographic Extent Names(s)	Australia
General Category	Gridded climatological data
General Custodian Jurisdiction	Australian Government Australia
Geographic Extent Polygon	Not applicable
Geographic Bounding Box	See below
North Bounding Latitude	-7.920
South Bounding Latitude	-51.420
East Bounding Longitude	156.750
West Bounding Longitude	110.250
Data Currency	
Beginning Date	1979
Ending Date	2007
Dataset Status	
Progress	Completed
Maintenance and Update frequency	Ongoing

Access	
Stored Data Format	Arc/Info grids – all Australia
Available Format Type	ASCII row major, Arc/Info grid Interchange (.e00), Shapefiles.
Access Constraint	<p>Satellite-derived global UV solar exposure estimates are based on data from the Earth Probe Total Ozone Mapping Spectrometer (TOMS) and The Aura Ozone Monitoring Instrument (OMI) from the National Aeronautics and Space Administration (NASA). Meteorological fields from the Bureau of Meteorology’s weather forecasting model are also used in the UV solar calculation.</p> <p>Any use of products from this imagery requires acknowledgement of the satellites TOMS and OMI (the original source of the ozone satellite data), and acknowledgement of the Commonwealth of Australia (Bureau of Meteorology) which received and processed the ozone data and then used them as input to the UV forecast model. Acknowledgement should be in the form: “UV Index <i>data derived from satellite imagery processed by the Bureau of Meteorology from the Total Ozone Mapping Spectrometer and Ozone Monitoring Instrument Satellite operated by National Aeronautics and Space Administration (NASA).</i>”</p> <p>Please contact us (see details below) for more information.</p>
Data Quality	
Lineage	<p>The Bureau of Meteorology’s UV radiation model uses total ozone images from satellites to estimate the daily UV Index at ground level at local noon-time.</p> <p>At each location for each satellite acquired image, the total ozone are averaged over each grid cell and used to estimate solar UV irradiance at the ground. Essentially, the UV irradiance at the ground can be calculated from the UV irradiance at the top of the earth’s atmosphere, the amount absorbed in the atmosphere (dependant on the amount of ozone present), the amount reflected from the surface (surface UV albedo) and the amount reflected from clouds (cloud albedo).</p> <p>These instantaneous irradiance values are integrated over the 290-400 nm wavelength window and weighted by the Erythemal Action spectrum to give UV Index (solar UV radiation exposure). One UV Index is equal to 25 mili-watts per square metre. The monthly exposure UV Index gridded datasets cover Australia with a resolution of 1.5 degrees in latitude and longitude.</p> <p>Missing data may be due to:</p> <ul style="list-style-type: none"> • Interruption to satellite operations, including technical problems on the satellite. • Problems with ground receiving equipment or data processing systems. <p>These datasets were produced by reprocessing archived monthly total ozone satellite data using software that was extensively rewritten in 2006, but based on the physical model that has been used since 1997.</p>

Positional Accuracy	The satellite data on which the analyses were based have an associated resolution and typical accuracy of 1.5 x 1.25 degrees (approx. 150 km by 125 km) up to and including 2005 and 1.0 x 1.0 degrees (approx. 100 km) thereafter, although some individual images may have positional errors of several kilometres. The UV forecast model was run at a resolution of 1.5x1.5 degrees (approx 150 km).
Attribute Accuracy	<p>The accuracy of the model's monthly estimates of UV Index exposure is estimated by comparison with measurements by the Australian Radiation Protection and Nuclear Safety Agency ground instruments. The source of uncertainties associated with calculations includes:</p> <ul style="list-style-type: none"> • Cloud-top reflectance. • Aerosols and haze in the atmosphere. • Satellite calibration. • The availability of monthly data • UV Radiation model algorithm uncertainties <p>The model assumes that monthly "averages samples" of the UV Index will describe the conditions for the monthly period. Uncertainty associated with the UV surface measurements should be considered when comparing UV estimates with surface measurements.</p> <p>All these factors with both random and biased components means that the 10% uncertainty for any of the monthly solar exposure estimates, regardless of the averaging period (that is, monthly and seasonal), is of the order of $\pm 40 \text{ mW/m}^2$.</p> <p>For more information (metadata) please contact us.</p>
Logical Consistency	Not applicable
Completeness	All of these months had at least half of their days sampled. Details of missing data are available – see Contact Information below. http://toms.gsfc.nasa.gov/

Contact Information	
Contact Organisation	Bureau of Meteorology
Contact Position	Climate Data Services
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Metadata date	
Metadata date	2008
Additional Metadata	Additional information available on request (see contact above)