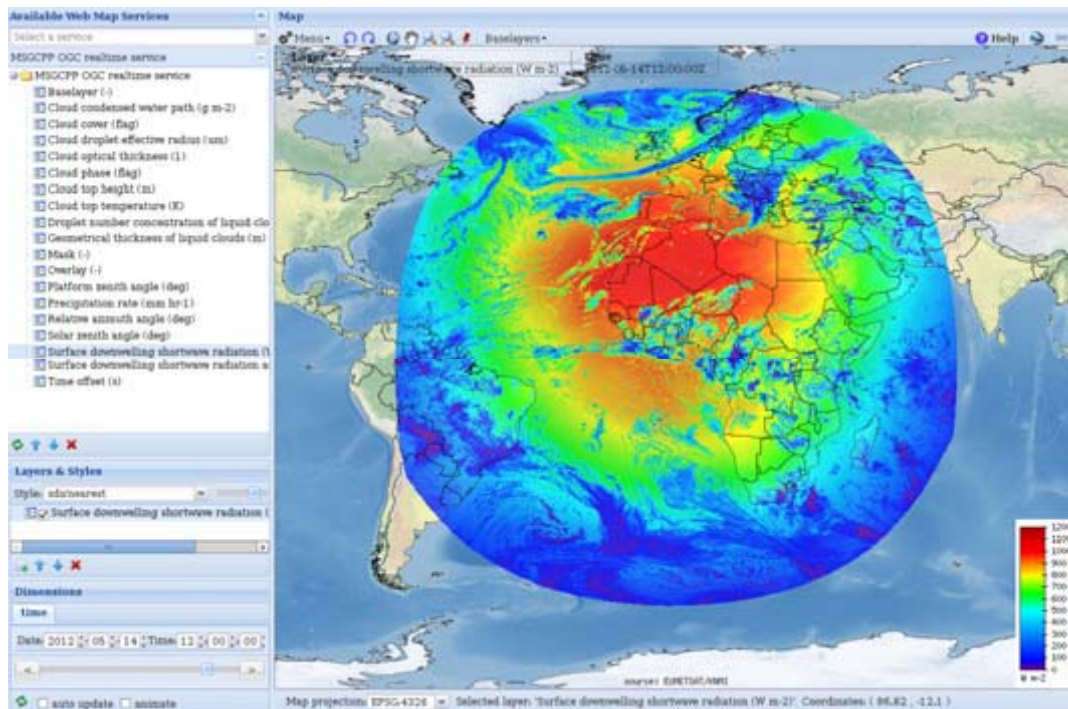


# HIGH-RESOLUTION DATASETS OF PRECIPITATION, SSI AND CLOUD PROPERTIES FOR THE MSG PERIOD (2005-PRESENT)

## KNMI MSG based gridded datasets

The Cloud Physical Properties (CPP) algorithm is being developed at KNMI to derive cloud, precipitation and radiation products from satellite instruments such as SEVIRI onboard the METEOSAT Second Generation (MSG). The CPP algorithm development is largely done inside EUMETSAT's Climate Monitoring Satellite Application Facility (CM-SAF), but also in research projects like EURO4M, SYNTHESIS, MSGSIM, and SICCS. The CM-SAF operationally provides level-3 (daily and monthly) cloud products.



**Figure:** MSG-derived surface downwelling solar radiation displayed at the interactive visualization website <http://msgcpp.knmi.nl>.

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## Infobox

SPECIFICATIONS	Data characteristics	Algorithm description
<p><b>Variables</b></p> <ul style="list-style-type: none"> <li>– cloud fraction</li> <li>– cloud-top height</li> <li>– cloud-top temperature</li> <li>– cloud thermodynamic phase</li> <li>– cloud optical thickness</li> <li>– retrieval error in cloud optical thickness</li> <li>– cloud particle effective radius</li> <li>– retrieval error in cloud particle effective radius</li> <li>– cloud liquid/ice water path</li> <li>– retrieval error in cloud liquid/ice water path</li> <li>– cloud droplet number concentration (for liquid clouds)</li> <li>– cloud geometrical thickness (for liquid clouds)</li> <li>– precipitation rate</li> <li>– surface downwelling solar radiation</li> <li>– clear-sky surface downwelling solar radiation</li> <li>– surface diffuse downwelling solar radiation</li> <li>– clear-sky surface diffuse downwelling solar radiation</li> </ul> <p><b>Auxiliary information</b></p> <ul style="list-style-type: none"> <li>– latitude</li> <li>– longitude</li> <li>– solar zenith angle</li> <li>– satellite zenith angle</li> <li>– sun-satellite azimuth difference angle</li> <li>– time offset compared to start of scan</li> <li>– quality flag.</li> </ul>	<p><b>Data characteristics</b></p> <p>Spatial resolution: 3x3 km<sup>2</sup> at MSG sub-satellite point</p> <p>Temporal resolution: 15 minutes</p> <p>Area: Meteosat full disk, restricted to maximum solar and satellite zenith angles of 78 degrees</p> <p>Time period: 2005-2011</p> <p>Grid: MSG-SEVIRI native grid</p> <p>Level: L2</p> <p>Version: 0001</p> <p>Format: NetCDF version 4, following the Climate and Forecast (CF-1.4) metadata convention</p> <p><b>Availability</b></p> <p>Accessible by anonymous ftp at <a href="ftp://msgcpp-ogc-archive.knmi.nl">ftp://msgcpp-ogc-archive.knmi.nl</a></p> <p>Conditions: freely available without restrictions</p> <p><b>Validation</b></p> <p>Cloud parameters, in particular thermodynamic phase, liquid/ice water path and geometrical thickness, were validated with ground-based and other satellite observations (Roebeling et al., 2008a; Roebeling et al. 2008b; Wolters et al., 2008; Greuell and Roebeling, 2009). Precipitation was validated with rain gauge and weather radar measurements (Roebeling and Holleman, 2009; Roebeling et al., 2012; Wolters et al., 2011). Surface radiation was validated with BSRN and other ground-based observations (Deneke et al., 2008; Greuell et al., 2012)..</p>	<p><b>Algorithm description</b></p> <p>The algorithm for cloud physical properties (CPP) was largely developed within the framework of EUMETSAT's Satellite Application Facility for Climate Monitoring (CM-SAF). It is described in Roebeling et al. (2006) and Meirink et al. (2010). The precipitation and surface radiation algorithms were developed at KNMI (Roebeling and Holleman, 2009; Deneke et al., 2008). The surface radiation algorithm was further improved in EURO4M (Greuell et al., 2012).</p> <p><b>Contact</b></p> <p>Jan Fokke Meirink          Royal Netherlands Meteorological Institute (KNMI)          Climate Observations Department          PO Box 201          3730 AE De Bilt          The Netherlands          Tel.: +31 30 2206420          e-mail: <a href="mailto:meirink@knmi.nl">meirink@knmi.nl</a>          web: <a href="http://msgcpp.knmi.nl">http://msgcpp.knmi.nl</a></p>