

Product and service description

Total aerosol optical depth (AOD) and aerosol type retrieved from satellite-borne sensors, delivered in near-real time (less than 24h delay). Global coverage at 60 x 30 km² resolution. Format: HDF4.

Online pre-calculated GIF daily and monthly maps available.

Data archive spanning 2003-2011.

Parameters include

- the AOD at 550 nm;
- the aerosol type number;
- derived parameters such as
 - multi-spectral AOD;
 - Angström coefficient;
 - fine/coarse mode AOD;
 - components AOD (sulfate, dust, soot, sea salt);
 - single scattering albedo.

Service provider: Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt (DLR).

- http://www.gmes-atmosphere.eu/services/gac/aerosol_record/
- http://wdc.dlr.de/php/indexer_r.php?dir_index=16&url=/data_products/AEROSOLS/synaer_orbit_hdf_archive.php

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Product generation and validation

Product generation

Combined retrievals from

- AATSR radiometer AATSR + SCIAMACHY spectrometer (on board Envisat);
- AVHRR radiometer + GOME-2 spectrometer (on board MetOP).

Product validation

Comparison with the NASA AERONET ground-based observations by CIMEL photometers (± 60 min ± 50 km) of multi-spectral AOD and other parameters.

Quality indicators provided: bias, RMSE, envelope.

Error on reflectances and critical retrieval parameters are taken into account in the information content analysis.

Plan: additional validation data to be used in the future include MACC, AEROCOM, MODIS/MISR data.

Quality control

About-daily quality checks are performed. Version numbers are documented on the website.

References

Holzer-Popp, T., M. Schroedter, and G., Gesell, Retrieving aerosol optical depth and type in the boundary layer over land and ocean from simultaneous GOME spectrometer and ATSR-2 radiometer measurements, 1, Method description, Journal of Geophysical Research, 107, D21, pp. AAC16-1 – AAC16-17, 2002a.

Holzer-Popp, T., M. Schroedter, and G., Gesell, Retrieving aerosol optical depth and type in the boundary layer over land and ocean from simultaneous GOME spectrometer and ATSR-2 radiometer measurements, 2, Case study application and validation, Journal of Geophysical Research, 107, D24, pp. AAC10-1 – AAC10-8, 2002b.

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Holzer-Popp, T., SYNAER Validation Report, MACC D_D-SAT_3.1.2, DLR, 2010.

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