

The CAMS Radiation Service in a nutshell

**Marion Schroedter-Homscheidt¹, Antti Arola², Niels Killius¹, Mireille Lefèvre³, Laurent Saboret⁴, William Wandji²,
Lucien Wald³, Etienne Wey⁴**

¹ German Aerospace Center (DLR), German Remote Sensing Data Center (DFD), Oberpfaffenhofen, 82334 Weßling, Germany,
+49 8153 282896, marion.schroedter-homscheidt@dlr.de.

² Finnish Meteorological Institute, Yliopistonranta 1 F, 70211 Kuopio, Finland.

³ MINES ParisTech, PSL Research University, 60, Boulevard Saint Michel, 75672 Paris cedex 6, France

⁴ TRANSVALOR S.A., Parc de Haute Technologie Sophia Antipolis, 694, Av. du Dr. Maurice Donant, 06255 Mougins cedex, France

The Copernicus Atmosphere Service (CAMS) combines state-of-the-art atmospheric modeling on aerosols with Earth observation data to provide information services covering European air quality, global atmospheric composition, climate, and UV and solar energy. Besides the radiation service, it provides information on – among others – ultra-violet radiation and aerosol concentration on a global scale as parameters being of interest for the solar sector.

Within the CAMS Radiation Service, existing historical databases HelioClim-3 and SOLEMI for monitoring incoming surface solar irradiance have been further developed. The new service is jointly provided by DLR, MINES ParisTech, and Transvalor. The Monitoring Atmospheric Composition and Climate (MACC) project series has been preparing for the service provision, which is now operational as part of the Copernicus programme. Data are made available both via the Copernicus portal (solar.atmosphere.copernicus.eu) and the SODA portal (www.soda-pro.com).

The radiation service consists of an all-sky radiation time series service taking satellite-based cloud parameters into account and a clear-sky radiation time series service for cloud-free skies. Quality of the service is ensured by regular input quality control, regular quarterly benchmarking against ground stations, and regular monitoring of the consistency in order to detect possible trends. The presentation aims at reviewing the quality control and validation activities.

Recent development activities for the future updates of the service include a bias correction and the handling of circumsolar irradiance as part of the direct irradiance calculation. Additionally, the cloud retrieval package being in use will be replaced by a probabilistic cloud retrieval package. Recent validation results of irradiances based on the new cloud information will be presented.

Overall, the paper will present the new service elements to come as a basis for feedback from the ICEM audience. It also will summarize quality control and validation results.