

Release of CM SAF CLAAS-3 CDR and ICDR: CM SAF CCloud property dAtAset using SEVIRI - Edition 3

The CLAAS-3 record provides cloud properties derived from intercalibrated measurements ([Meirink et al., 2013](#)) of the SEVIRI sensor onboard METEOSAT second generation (MSG) satellites. CLAAS-3 is the latest edition of CLAAS with previous editions documented in [Stengel et al. \(2014\)](#) and [Benas et al. \(2017\)](#). CLAAS-3 includes the following cloud properties: cloud mask/type, cloud top temperature/pressure/height, cloud thermodynamic phase, cloud optical thickness, cloud particle effective radius and cloud water path. Additionally, cloud droplet number concentration and cloud geometrical thickness are provided for liquid clouds. All data are available on multiple processing levels spanning level-2 (native SEVIRI resolution, i.e., 15 minutes repeat cycle and 3 km (nadir) spatial resolution) to level-3 (spatio-temporal aggregations such as daily averages, monthly averages and monthly histograms on a 0.05° x 0.05° grid, as well as monthly mean diurnal cycles and joint cloud optical thickness – cloud top pressure histograms on a 0.25° x 0.25° grid). CLAAS-3 covers the time period 2004/01 until 2020/12 as climate data record (CDR) and is operationally extended as Interim Climate data Record (ICDR) to the present with a latency of 10 days.

Some key features of CLAAS-3 compared to previous editions are:

- 1) The ICDR contains the same (full) product portfolio as the CDR,
- 2) Significant improvements for cloud detection with provision of a cloud probability,
- 3) Significant improvements for vertical placement of clouds (pressure, temperature, height),
- 4) New cloud effective radius products using the 3.9 µm in addition to the 1.6 µm channel,
- 5) New cloud droplet number concentration and geometrical thickness products for liquid clouds, and
- 6) Full uncertainty portfolio for all level-2 and level-3 products.

A comprehensive evaluation was conducted and results are summarized in the Validation Report, which composes, along with the Product User Manual and the Algorithm Theoretical Baseline Documents a rich set of CLAAS-3 documentation. With CLAAS-3, regional and large-scale cloud processes at temporal scales of quarter-hours to years can be studied. Furthermore, due to its increasing record length (19 years and growing), CLAAS-3 becomes a suitable source for climate monitoring applications

The data record can be ordered via the Web User Interface. More information on the data record and accompanying documentation is available from the DOI page:

[10.5676/EUM_SAF_CM/CLAAS/V003](https://doi.org/10.5676/EUM_SAF_CM/CLAAS/V003)

Changes in provision of monthly mean cloud fraction from ICDR CLAAS-3 via EUMETCast and stopping of processing of former ICDR SEVIRI version based on CLAAS-2

With the release of the new CLAAS-3 ICDR edition, CM SAF will phase out the processing of the [ICDR](#), which is based on the CLAAS-2 algorithms. To allow users a smooth transition, the two versions will be distributed in parallel until the end of 2022.

The monthly mean cloud fraction (CFC) will also be provided via EUMETCast as before (same channel characteristics as before). As for the distribution via our Web User Interface, both versions will be provided in parallel until end of the year (including products for December 2022).

Change in used satellite combination for ICDR AVHRR products due to degraded quality of NOAA-15 data

The CM SAF [ICDR AVHRR](#) is based on a combination of AVHRR data from different NOAA and Metop satellites. From the start of the time series in January 2019 until 22 October 2022, AVHRR data from NOAA-15, NOAA-18, NOAA-19 and Metop-A or Metop-B (change at end-of-life of Metop-A) have been used. In mid-October, the AVHRR data onboard NOAA-15 started showing degraded quality due to problems with the scan motor of the instrument (see, e.g., [this message](#) from NOAA). CM SAF removed the NOAA-15 AVHRR sensor from the processing in order to avoid usage of the degraded AVHRR data. Thus, from 23 October onwards, only data from NOAA-18, NOAA-19 and Metop-B have been used in the AVHRR-based ICDR data record. There are no changes to the algorithms at that time. Users can find information on the used satellite combination in the global attributes of the netCDF-files (attribute "CMSAF_platform_and_orbits").

Though improvements have been seen in the data, this older sensor has not been put back into operations. CM SAF will monitor the behavior of the sensor and will assess the usage for the next edition of the CLARA ICDR, which is planned to become available in early 2023.

New phone number for CM SAF User Help Desk

The phone number of the [CM SAF User Help Desk](#) has changed. Users can now reach the CM SAF Help Desk via +49 (0)69 8062 4949.

Publications by CM SAF team

The following list gives an overview of some recently published papers by the CM SAF team covering CM SAF products and developments. Authors from the current CM SAF team are marked in bold:

Eiras-Barca, J., Algarra, I., Nieto, R., **Schröder, M.**, Hegglin, M.I., Gimeno, L.: Analysis of the main source regions of moisture transport events with the new ESA CCI/CM-SAF total column water vapour climate data record (v2). *Q. J. R. Meteorol. Soc.*, **148**(748) 3244– 3258, 2022. DOI: [10.1002/qj.4358](https://doi.org/10.1002/qj.4358)

Oliveira, R. A. J., Roca, R., Finkensieper, S., Cloché, S., and Schröder, M.: Evaluating the impact of a time-evolving constellation on multi-platform satellite based daily precipitation estimates. *Atmos. Res.*, **279**,106414, 2022. DOI: [10.1016/j.atmosres.2022.106414](https://doi.org/10.1016/j.atmosres.2022.106414)

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