



The CLAAS-2.1 data record - 14 years of SEVIRI cloud properties by CMSAF

Martin Stengel (1), Daniel Philipp (1), Stephan Finkensieper (1), and Jan Fokke Meirink (2)

(1) Deutscher Wetterdienst (DWD), Offenbach, Germany (martin.stengel@dwd.de), (2) Royal Netherlands Meteorological Institute (KNMI)

Spatiotemporal variability of clouds is an important aspect of the climate system. Therefore climate data records of cloud properties are valuable to many researchers among the climate community. The passive SEVIRI imager onboard the geostationary Meteosat Second Generation satellites is well suited for the needs of cloud retrievals as it provides measurements in 12 spectral channels every 15 minutes and thus allows for capturing both the spatial and the temporal variability of clouds. However, requirements on climate data records are high in terms of record length and homogeneity, so that intercalibration and homogenization between the available SEVIRI instruments becomes a crucial factor.

We present the CLOUD Property DATASET using SEVIRI (CLAAS) version 2.1, which is an extended version of CLAAS-2. CLAAS-2.1 covers the time period 2004 to 2017 and features cloud mask, cloud top properties, cloud phase, cloud type, optical thickness, effective radius and water path on the complete SEVIRI disc in 15-minute temporal resolution. Temporally and spatially averaged quantities, mean diurnal cycles and monthly histograms are included as well. CLAAS-2.1 was derived from a homogenized measurement basis, obtained by intercalibrating visible and infrared SEVIRI radiances (of Meteosat 8, 9 and 10) with MODIS, using state-of-the-art retrieval schemes.

In addition to the data characteristics, we will present validation results using A-Train sensors as reference. The CLAAS-2.1 record allows for a large variety of applications of which some will be indicated in our presentation, with focus on determining diurnal to seasonal cycles, spatially resolved frequencies of cloud properties as well as showing the potential for using CLAAS-2.1 data for model process studies.