



CM_SAF's climate monitoring products for the Arctic

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The low cloud amounts over the Western Arctic Ocean in summer 2007 have been proposed as one contributing factor to the unprecedented rapid melting of sea ice during the polar summer of 2007. Such analyses and the continuous monitoring of such processes require stable long-term satellite based climate monitoring products.

As component of EUMETSAT's activities in climate monitoring, the Satellite Application Facility on Climate Monitoring (CM-SAF; www.cmsaf.eu) provides climate monitoring products derived from meteorological satellites. In 2009 the CM-SAF's product suite has been extended to the Arctic.

Several cloud parameters (cloud fraction; cloud type; cloud top height / temperature / pressure) as well as surface albedo are derived from the Advanced Very High Resolution Radiometers (AVHRR) on-board polar-orbiting satellites (NOAA-17/18 and MetOP2). CM-SAF's operational processing environment generates daily and monthly mean products with a spatial resolution of 15km*15km on a day-to-day basis. The processing exploits AVHRR data at full spatial resolution (~1.1 km at nadir) for all available overpaths (~43 per day for the three satellites) and is based on algorithms that were provided by the "EUMETSAT SAF in Support to Nowcasting and Very Short-Range Forecasting". These are based on multi-spectral threshold techniques applied to each pixel of the satellite scenes.

Operational processing has been started with January 2009. Selected months in 2007 had been generated for product validation. In this contribution we illustrate features of these datasets and show results of validations against ground-based measurements (synoptic manual observations). In agreement with other studies, the data indicate that for some part of the Arctic, low cloud amounts occurred in summer 2007 which could be a contributing factor to the ice melt during the summer of 2007. In support of the International Polar Year CM-SAF has also processed these data for winter 2007/08. Currently the reprocessing of a long-time series starting 1982 is prepared.