



New satellite-derived climate monitoring products for the Inner Arctic

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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. The CM-SAF's product suite has recently been extended to the Inner 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, NOAA-18 and MetOP2). CM-SAF has implemented an operational processing environment that 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 overpasses of the polar-orbiters (~ 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 (NWC-SAF)“. These are based on a multi-spectral threshold technique applied to each pixel of the satellite scenes. Start of operational production is planned for January 2009.

Selected months in 2007 have already 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) for selected months in 2007. 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 unprecedented rapid melting of sea ice during the polar summer of 2007. The new CM-SAF products for the Arctic offer additional opportunities for such analyses and regular monitoring of such processes. The data could be valuable for validation of process studies within the International Polar Year.