A long-term surface albedo dataset from Meteosat data

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In the frame of its Climate Data Record generation activities, EUMETSAT has implemented a new dedicated algorithm, named Geostationary Surface Albedo (GSA), based on a method proposed by Pinty et al. The GSA algorithm estimates the surface albedo under direct and perfectly diffuse illumination conditions from observations of the Meteosat First Generation (MFG) radiometer in the VIS band, accounting for the surface anisotropy and aerosol scattering. Specific efforts have been put on the estimation of the retrieval uncertainties accounting for the observation errors and algorithm assumptions. The retrieval algorithm is also applicable to other radiometers on geostationary satellites such as those on the GOES and GMS satellite series. The algorithm has been successfully applied, within the EUMETSAT operational reprocessing facility, to the whole MFG images archive i.e. from 1982 (Meteosat 2) up to 2006 (Meteosat 7) and the processing is on-going for the Indian Ocean Data Coverage from 1998 (Meteosat 5) to today (Meteosat 7). This provides the scientific community with a consistent multidecadal surface albedo climate data record, freely available from the EUMETSAT archive. This paper presents an overview of this dataset describing the content, quality and accessibility of the product. EUMETSAT's activity is now performed under the umbrella of the Sustained Co-Ordinated Processing of Environmental Satellite Data for Climate Monitoring (SCOPE-CM) initiative established by WMO. SCOPE-CM targets at a network of facilities ensuring continuous and sustained provision of high-quality satellite products related to the GCOS Essential Climate Variables (ECV), on a global scale, responding to the requirements of the Global Climate Observing system (GCOS). Within the framework EUMETSAT has exported the GSA algorithm for implementation at JMA and NOAA. The resulting guasi global ECV product demonstrates the essential contribution of operational weather satellites into the generation of consistent time series of surface albedo.