

Climate Data Records of the EUMETSAT Satellite Application Facility on Climate Monitoring



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The Satellite Application Facility on Climate Monitoring (CM SAF), as part of EUMETSAT's SAF network, exploits satellite based remote sensing data to derive Environmental Data Records (EDR) and Climate Data Records (CDR) of Essential Climate Variables (ECV) and other parameters with high relevance to the climate system. The main focus of the CM SAF Continuous Development and Operations Phase 2 (CDOP-2, 2012-2017) is to develop and improve methods to derive CDRs on an operational basis in a sustained mode. Data records are derived from different sensor types on operational geostationary and polar orbiting meteorological satellites including instruments such as MVIRI, SEVIRI, GERB, ATOVS, AVHRR and SSM/I.

Climate Data Records...

CM SAF's climate data records are based on carefully (inter-) calibrated satellite data using the latest version of the respective algorithms. The data records are generated in dedicated re-processing events. After careful validation and review by external experts, the data records are released and available to the users via the CM SAF data ordering page.

Already released CDRs...

Along with the provision of its EDRs, CM SAF has already released several CDRs, summarised in Table 1. Further information can be found via the corresponding Digital Object Identifiers (DOI) available at

www.cmsaf.eu/doi

Sensor	Parameter	Period	Coverage
Fundamental Climate Data Record (FCDR)			
SMR, SSM/I, SSMIS	Microwave Radiances	1979-2014	global
Climate Data Records (CDR)			
SSM/I, SSMIS	Total integrated water vapour, evaporation, precipitation, freshwater flux, latent heat flux, near surface wind speed and humidity	1987-2014	global ice free ocean
AVHRR GAC	Cloud parameters, surface radiation parameters, incl. albedo	1982-2013	global
SEVIRI	Cloud parameters, aerosol optical depth	2004-2014	Europe & Africa
GERB/SEVIRI	Top of atmosphere radiative fluxes	2004-2014	Europe & Africa
MVIRI/SEVIRI	Cloud parameters, surface radiation parameters, incl. albedo and land surface temperature, FTH	1983-2015	Europe & Africa
	Top of atmosphere radiative fluxes	1982-2014	

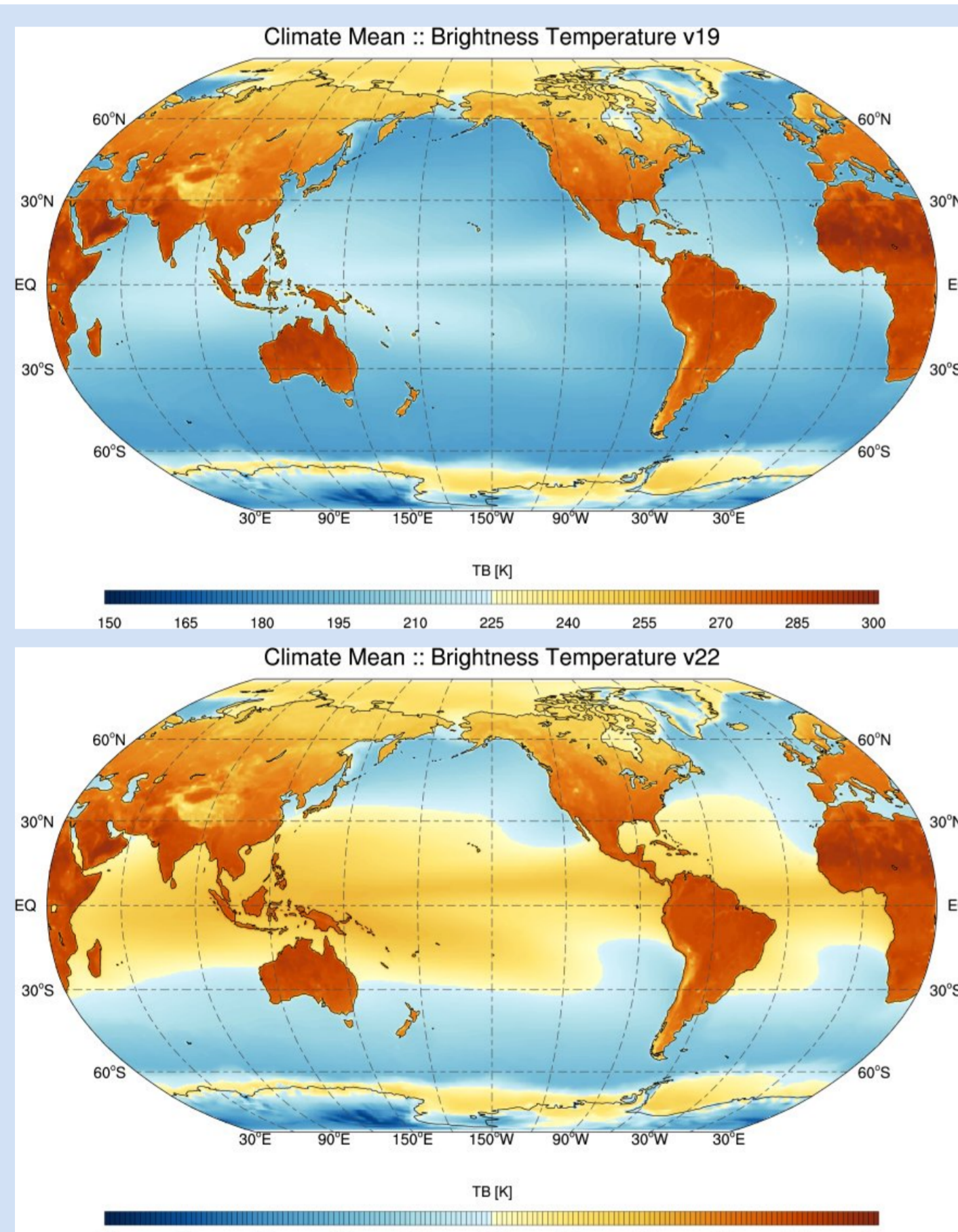
Table 2: List of CM SAF CDRs to be released in CDOP-2 in 2016

To be released until 2017...

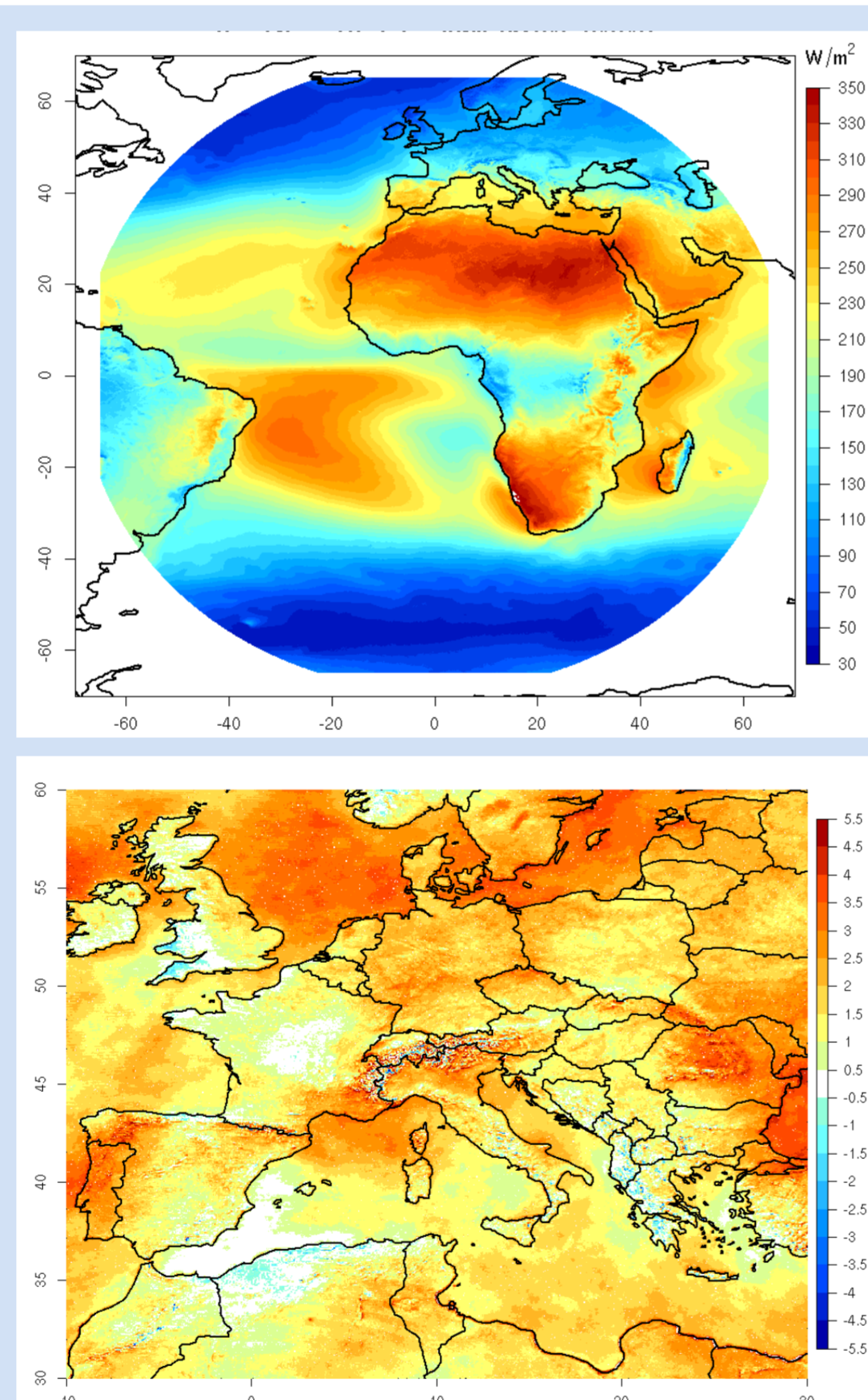
During CDOP-2 (2012-2017), CM SAF will continue to develop capabilities for a sustained generation and provision of CDRs derived from operational meteorological satellites. In particular, the generation of long term data records will be pursued. CM SAF will update several already released CDRs and will provide CDRs of additional parameters after careful validation and review of the data records. These data records will be based on carefully calibrated and inter-calibrated data, too. A list of climate data records to be released in 2016 is given in Table 2.

User Help Desk

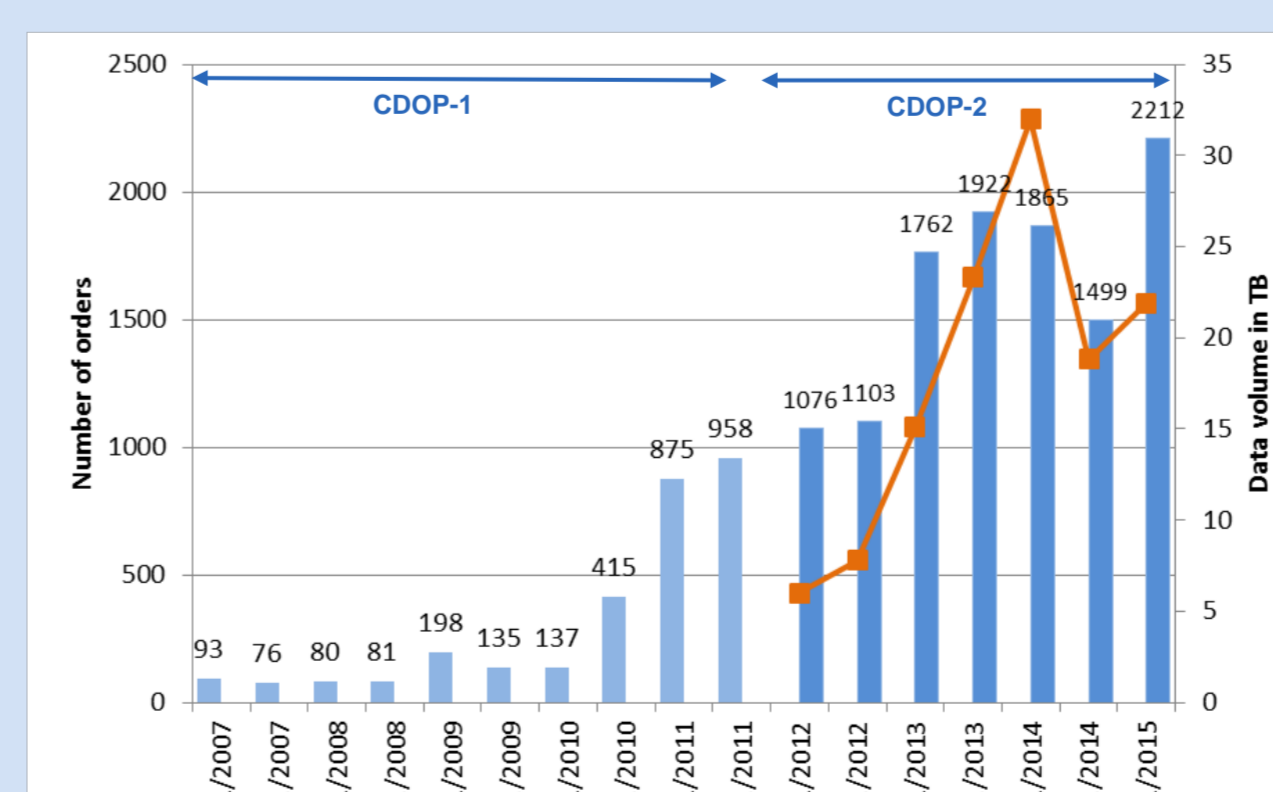
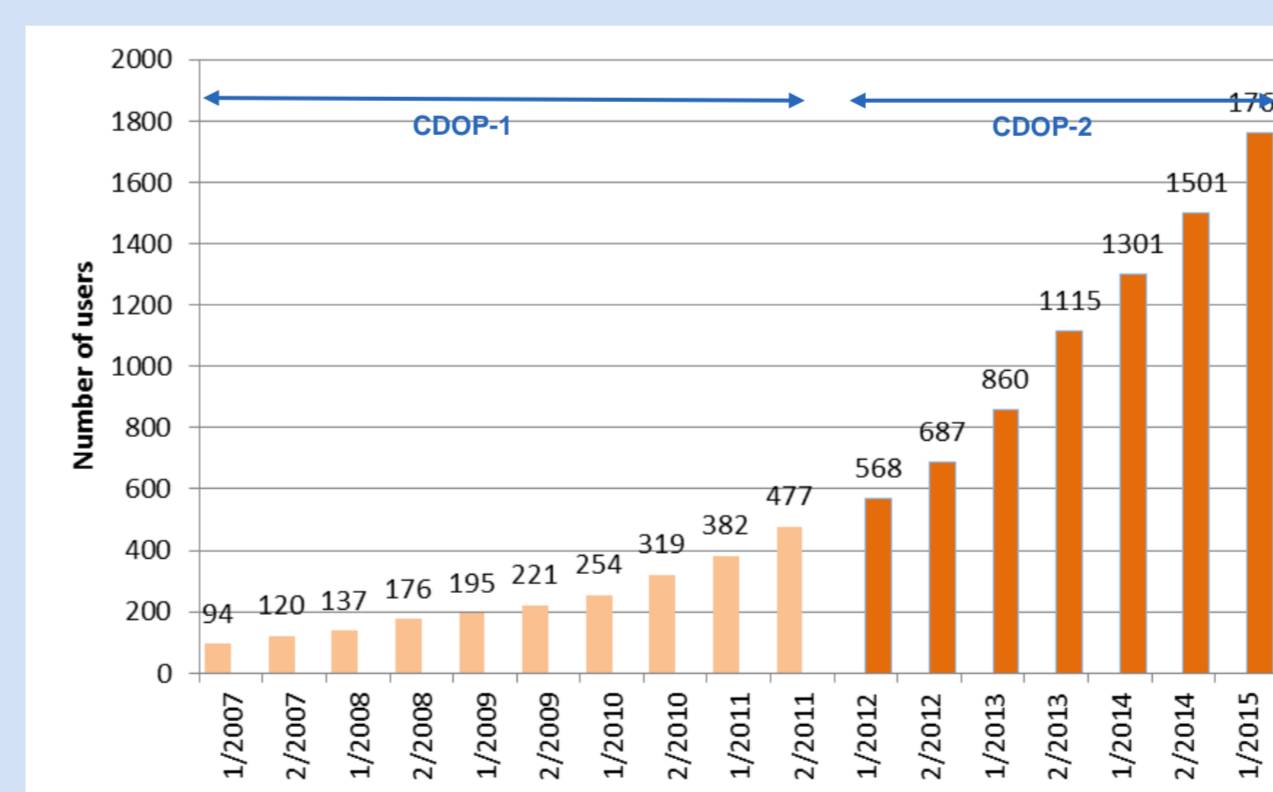
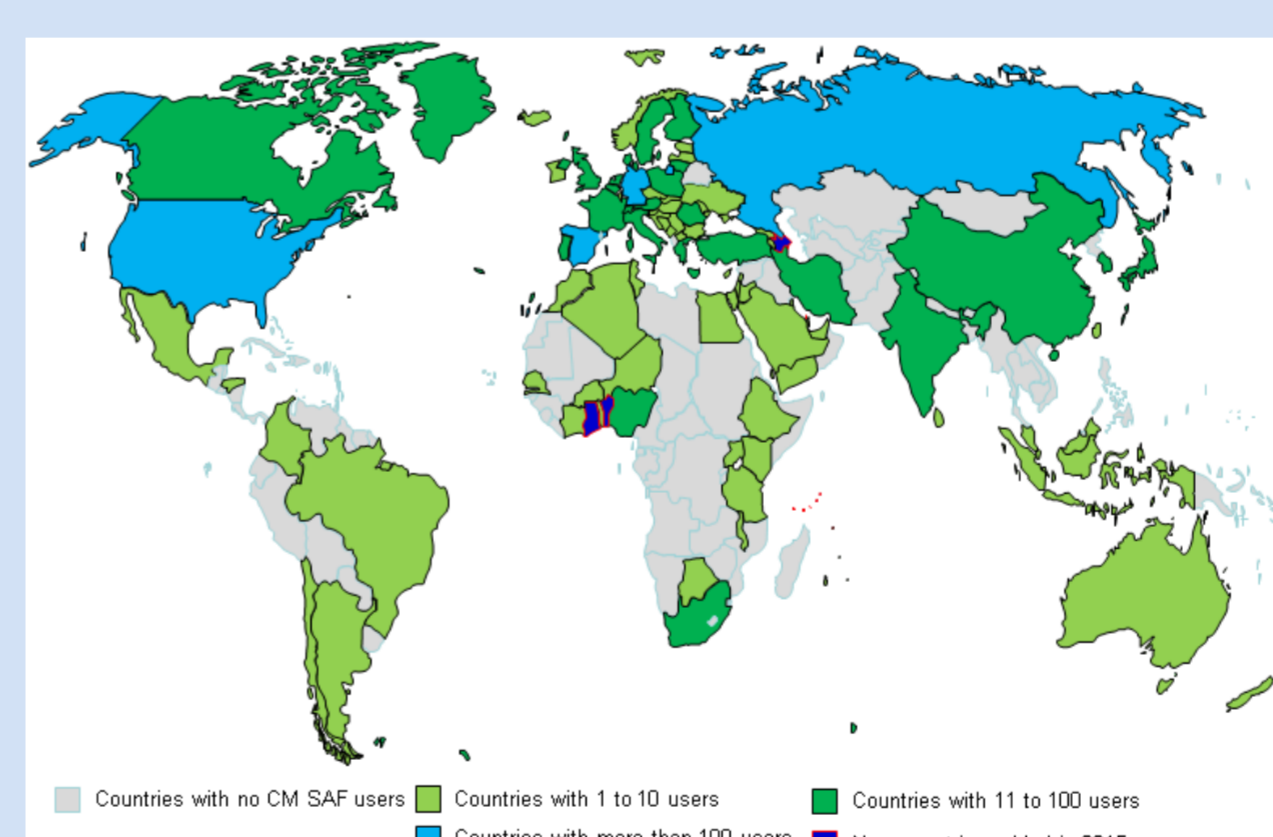
Data can be ordered through the CM SAF webpage wui.cmsaf.eu and are provided free of charge to any interested user (user registration is mandatory). A Graphical User Interface and data conversion tools are provided in addition. A selection of sub-regions and re-projection of data is possible during the ordering process. Add-on products and ancillary data (e.g., lat/lon, land/sea mask, etc) as well as example files are available on the webpage. Additionally, service messages, information on changes in processing, known product disruptions as well as a newsletter and documentation on the products is available on www.cmsaf.eu.



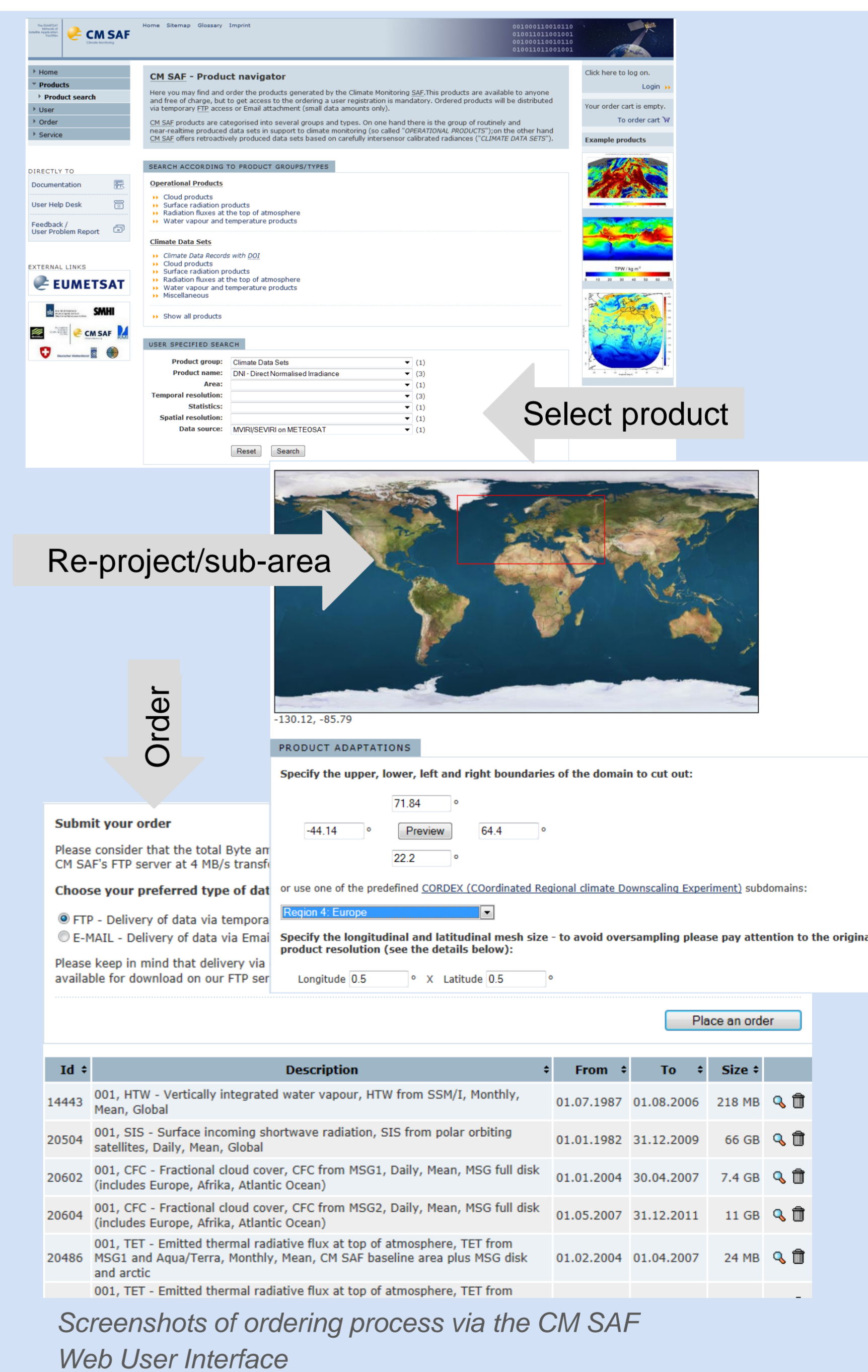
Climatological mean (1992-2013) of microwave brightness temperatures at 19 GHz (v)(top) and 22GHz (v)(bottom)



Climatological mean of surface Direct Normalized Radiation (DNI, top) and the trend in DNI for 1983-2013 in W/m² based on MVIRI and SEVIRI data



Countries of origin of CM SAF users (top, status June 2015), number of registered users (middle), number of orders and provided data volume (bottom)



Status Sep-2015

Sensor (Name)	Parameter	Period	Coverage
Fundamental Climate Data Record (FCDR)			
SSM/I, SSMIS	Microwave Radiances	1987-2013	global
Climate Data Records (CDR)			
SSM/I	Total integrated water vapour	1987-2006	global ice free ocean
SSM/I	Precipitation, evaporation, freshwater flux, latent heat flux, near surface wind speed and humidity	1987-2008	global ice free ocean
ATOVS	Water vapour and temperature parameters at different layers/levels	1999-2011	global
AVHRR GAC (CLARA-A1)	Cloud parameters, surface albedo, surface radiation parameters	1982-2009 1989-2009	global
SEVIRI (CLAAS)	Cloud parameters, surface albedo, surface radiation fluxes	2004-2011 2006-2011	Europe & Africa
GERB/SEVIRI	Top of atmosphere radiative fluxes	2004-2009	Europe & Africa
MVIRI	Solar surface radiation parameters	1983-2005	Europe & Africa
MVIRI/SEVIRI	Free tropospheric humidity	1983-2009	Europe & Africa
	Solar surface radiation parameters	1983-2013	

Table 1: List of released CM SAF CDRs

