METEOROLOGICAL PRODUCTS FROM MSG

The paper provides a list of meteorological products which are based on MSG observations and derived in the MSG Applications Ground Segment consisting of a central and distributed product derivation facilities.

METEOROLOGICAL PRODUCTS FROM MSG

1   INTRODUCTION

A number of meteorological products will be extracted from the MSG level 1.5 image data. The list of the products proposed for generation in the MSG Application Ground Segment is provided in Table 1. The MSG MSG Application Ground Segment (AGS) consists of a MPEF (Meteorological Processsing Facility) located at the EUMETSAT Headquarters and Satellite Application Facilities (SAF) located within weather services and research institutes of EUMETSAT Member States. It should be noted that this list is not a complete and final list of meteorological products to be extracted from the MSG Application Ground Segment, but serves to indicate the current baseline.

Table 1 contains information on the products to be extracted from:
- MPEF
- Ocean and Sea Ice SAF
- Support to Nowcasting and Very Short Range Forecasting SAF
- Ozone Monitoring SAF

Product	Characteristics	Method	Coverage area	Product Frequency	Resolution (at SSP)	Applications & Users	Timeliness	Method of distribution	Developer
Atmospheric Motion Vectors (AMV)	Wind vectors with heights assigned derived from cloudy and cloud-free segments; with quality indicators	Evolution of MTP-MPEF method	MSG processing area	1 h	100 km HRV: 30 km	NWP; Climate; Forecaster	30 min	GTS	MPEF
Calibration Support (CAL)	Calibration information update using external ground truth data	Forward radiation modelling for all SEVIRI channels	N/A (refers to SEVIRI instrument)	Every image	N/A	All users of actual and archived SEVIRI imagery	15 min	In-house delivery to MSG Image Processing and MARF	MPEF
Clear Sky Radiance (CSR)	Radiance values for clear sky and cleared sky segments	Evolution of method currently developed within the MTP, based on the MSG MPEF scenes analysis method	MSG processing area	3 hourly	100 km	NWP	30 min	GTS	MPEF
Climate Data Set (CDS)	Results from Scenes Analysis, for continuity with MIEC and MTP MPEF product	Dataset based on Scenes Analysis results	MSG processing area	1 h	100 km	Climate ; Agromet.; Hydrology	N/A	MARF retrieval	MPEF
Cloud Analysis (CLA)	List of cloud layers with coverage, temperature, pressure per layer, cloud type and cloud phase	based on the MSG MPEF scenes analysis method	MSG processing area	3 h	100 km	NWP; Climate; Forecasting	30 min	GTS MSG HRIT/LRIT (imagery product)	MPEF
Cloud Top Height (CTH)	Imagery product with cloud top height in steps of 300 metres	Evolution of MTP MPEF CTH product	MSG processing area	3 h	3x3 pixels	Aviation Meteorology	1 h	MSG HRIT/LRIT	MPEF
High Resolution Precipitation Index (HPI)	Precipitation Index product for GPCP	GPCP Algorithm. Assignment of IR pixel to temperature classes according to the EBBT.	± 40 degrees of latitude ± 50 deg. of longitude	3h	1 ° by 1 ° grid	Agromet.; Climate; Hydrology	N/A	off-line delivery to GPCP centre	MPEF
ISCCP Data Set (IDS)	Reduced resolution image sectors	Resampling of level 1.5 image data	MSG processing area	as defined by ISCCP	as defined by ISCCP	ISCCP programme	N/A	off-line delivery to ISCCP centre	MPEF
Tropospheric Humidity (TH)	Upper and medium tropospheric relative humidity (in%)	Evolution of method used in MTP MPEF	MSG processing area	1 h	100 km; 2 layers	NWP; Forecasting; Climate	30 min	GTS	MPEF
Total Ozone (TOZ)	total column density of ozone derived from MSG	Physical retrieval	MSG processing area	1 h	100 km	NWP; Ozone Monitoring Services and Research Institutes	1 h	GTS	SAF Ozone (Météo France)
Global Instability Index (GII)	Air mass instability on synoptic scale	Method developed in external study (univ. Bonn) and SAF Nowcasting and VSRF	MSG processing area	1 h	30 km (TBC)	Nowcasting; Aviation	30 min	GTS MSG HRIT/LRIT	study contractor and SAF N + VSRF (INM)
Atlantic Surface Radiative Fluxes (ASRF)	Surface solar and longwave downward and net fluxes	SW radiation from VIS data; LW from satellite cloud classification and NWP model outputs	Atlantic Ocean and adjacent seas	3 h	10 x 10 km	Ocean modelling, Climate	TBD	GTS Research networks	SAF O+I (Météo France + DNMI)
Atlantic Sea Surface Temperature (ASST)	Composite SST field at mesoscale spatial resolution	Multi-window techniques with a simple surface skin to bulk temperature transformation	Atlantic Ocean and adjacent seas	3 h	10 x 10 km	NWP, climate, fishing, Marine met. Centres, meteorology and ocean services	TBD	GTS Research networks	SAF O+I (Météo France, DNMI + DMI)
Clear-sky UV fields	UV distribution for clear-sky areas	Ozone forecast and Radiative Transfer calculations	Regional and Global [TBC]	at least once per day [TBC]	100 km	Public service for information on UV	30 minutes	TBD	SAF Ozone (DMI)
UV fields with clouds and albedo	UV distribution (solar UV index)	Ozone forecast and Radiative Transfer calculations	Global, excluding polar regions	Daily for diurnal doses & full spectra; hourly for dose rates	100 km or better	UV research	offline product	TBD	SAF Ozone (FMI)

Notes:

2)   *Public networks = Access to local database or distribution via public networks; transfer of product to be initiated by the user.*

3)   *MSG area N refers to the northern quarter of the SEVIRI imaging area, i.e. METEOSAT area B.*

4)   *NWP usage: refers to products to be used by* **operational** *NWP.*