EUMETSAT
NWC SAF
SUPPORT TO NOWCASTING AND VERY SHORT RANGE FORECASTING

AEMet
Agencia Estatal de Meteorología

NWC SAF overview

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NWC SAF Users Workshop 2020

10-12 March 2020

AEMET HQ, Madrid

Objective of the presentation

An overview of the current status of the NWC SAF products and services

- As an introduction to specific presentations
  - from developers about future product developments
  - From users about use of the NWCSAF products

- As a basis for discussion about users requirements in satellites for nowcasting for the coming years

Outline of the presentation

- Introduction to the NWC SAF
- NWC SAF GEO SW package
  - Products
  - Satellites supported
- NWC SAF PPS SW package
  - Products
  - Satellites supported
- Future development plans
- Training activities/Testbeds
- Collection of requirements from users

NWC SAF concept

- To ensure the optimum use of meteorological satellite data in Nowcasting and Very Short Range Forecasting:

- The NWC SAF develops and maintains SW Packages (for GEO and POLAR Satellites) freely distributed to registered users to generate satellite products with a direct application in Nowcasting

- User support

- Training

nwc-saf.eumetsat.int

NWC SAF Consortium

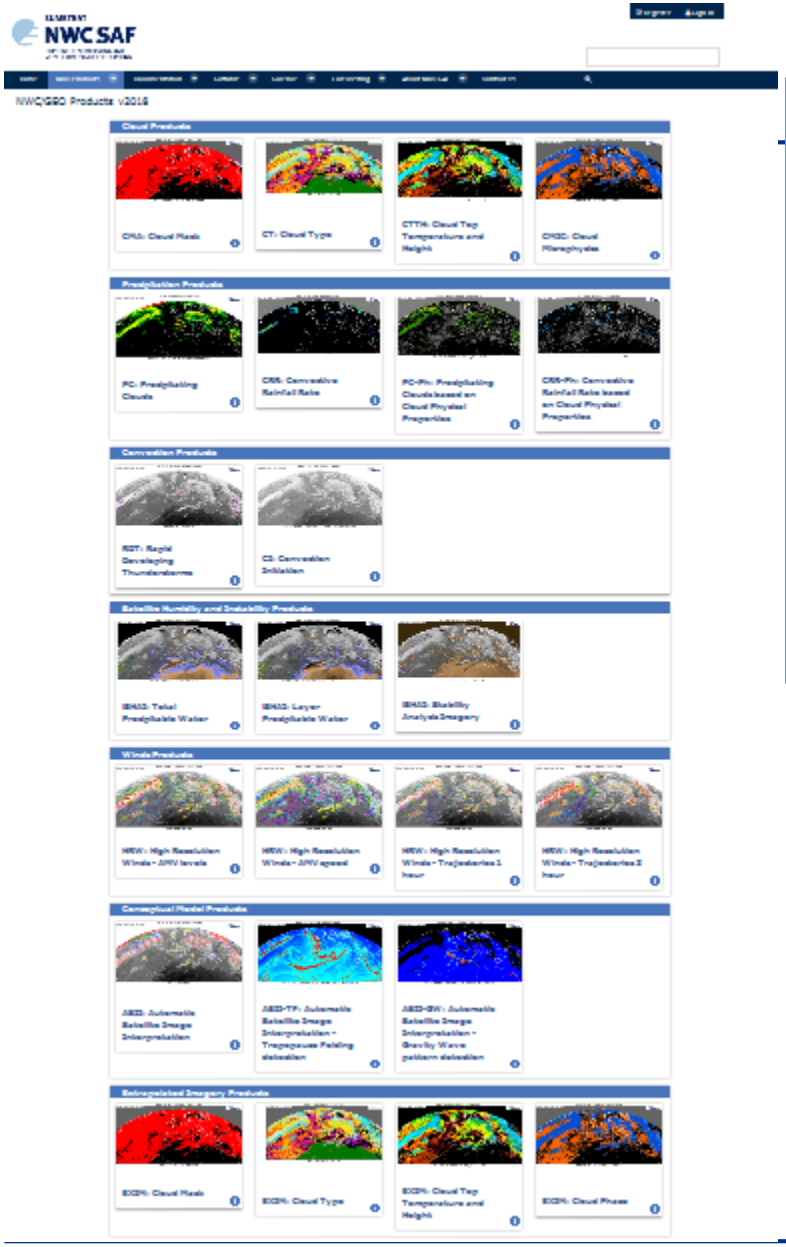
Leading Entity. Winds, Precipitation and stability GEO products

Cloud and Convection GEO products

Extrapolation and meteorological features detection GEO products

PPS SW package. Clouds and precipitation products for polar satellites

GEO/PPS product comparison.
Prototyping future MTG lightning products



NWC SAF GEO Software Package

NWC SAF GEO Software Package

Current operational SW version:

- GEO v2018 released February 2019
  - Some improvements have been introduced in products that are a continuation of GEO v2016 products
  - Precipitation products from microphysical properties night-time algorithm
  - Ci and EXIM upgraded to pre-operational products
  - ASII-TH upgraded to operational product
  - New ASII-GW
  - Support to Himawari-08
- A patch has been released in January 2020
  - Support to GOES-16
  - additional new format “2018 IWWG common format” for HRW product
  - Correction of some bugs

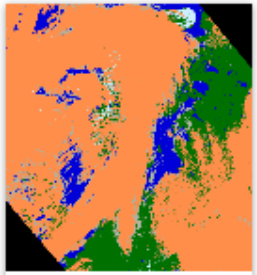
NWC SAF GEO Software Package

Supported Satellites:

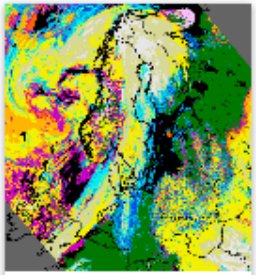
- MSG 0º service
- MSG Rapid Scan Service
- MSG-IODC
- HIMAWARI-08
- GOES-16

NWC SAF PPS Software Package

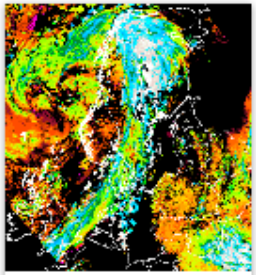
Cloud Products



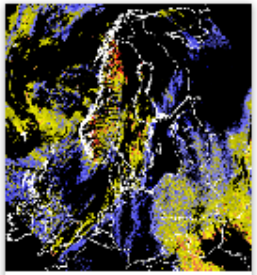
CMA: Cloud Mask



CT: Cloud Type

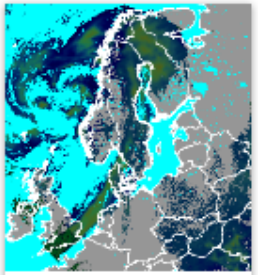


CTTH: Cloud Top Temperature and Height



CPP: Cloud Physical Properties

Precipitation Products



PC: Precipitating Clouds

CMa-Prob cloud probabilities
(as greyscale image with range 0-100 %

NWC SAF PPS Software Package

Current operational SW version:

- PPS v2018 released in January 2019
  - Totally new CTTH neural network algorithm
  - Improved CT and CMa
  - New Cloud Probability product. (a kind of cloud mask, giving the probability of cloudiness, in percent, for each pixel)
  - Support NOAA20, MetopC, High Resolution VIIRS
  - Technical improvements
- Patch PPS 2018.1
  - Improved CMa-prob
  - Use of Conda
- Patch PPS 2018.2
  - Processing MERSI-2 (FY-3D/E) as beta functionality
  - Correction of some bugs

NWC SAF PPS Software Package

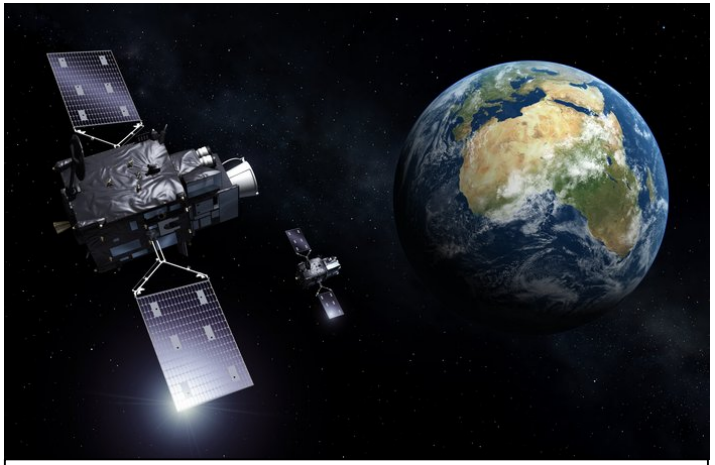
Supported Sensors/Satellites:

- AVHRR data from NOAA-and Metop-scenes
- VIIRS instrument on-board the NPP satellite
- MODIS
- Mersi-2 as a beta functionality

NWC SAF Future plans:

- Delivery of MTG-I day-1 SW, to generate MTG NWCSAF products from the first day of MTG operation (~ Q4 2022)
- Delivery of EPS-SG day-1 SW, to generate EPS-SG (A) NWCSAF products from the first day of EPS-SG (A) operation (~ Q2 2023)
- Continuous improvement and NWC SAF Products
- Prototyping of new products for new satellites/instruments: MTG-LI on board of MTG-I , MTG-IRS on board of MTG-S, MWI/ICI on board of EPS-SG B

NWC SAF SW IN THE MTG ERA



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MTG: 3 main instruments in 2 satellites for nowcasting applications

MTG-I

- MTG-FCI
- MTG-LI

MTG-S

- MTG-IRS

The NWC SAF will provide to the users SW that provides services and generates products for the 3 MTG instruments and will allow to combine data of all of them with the aim of exploiting the synergies of all the MTG instruments

NWC SAF training

EUMeTrain events:

- Event week on Aviation Meteorology 2018
  http://www.eumetrain.org/events/aviation_week_2018.html
- Event Week on convection 2019
  http://www.eumetrain.org/events/convection_week_2019.html
- NWCSAF training: online introduction lectures on scientific and technical aspects of the PPS v2018 software package

http://www.eumetrain.org/resources/nwcsaf_pps_v2018.html

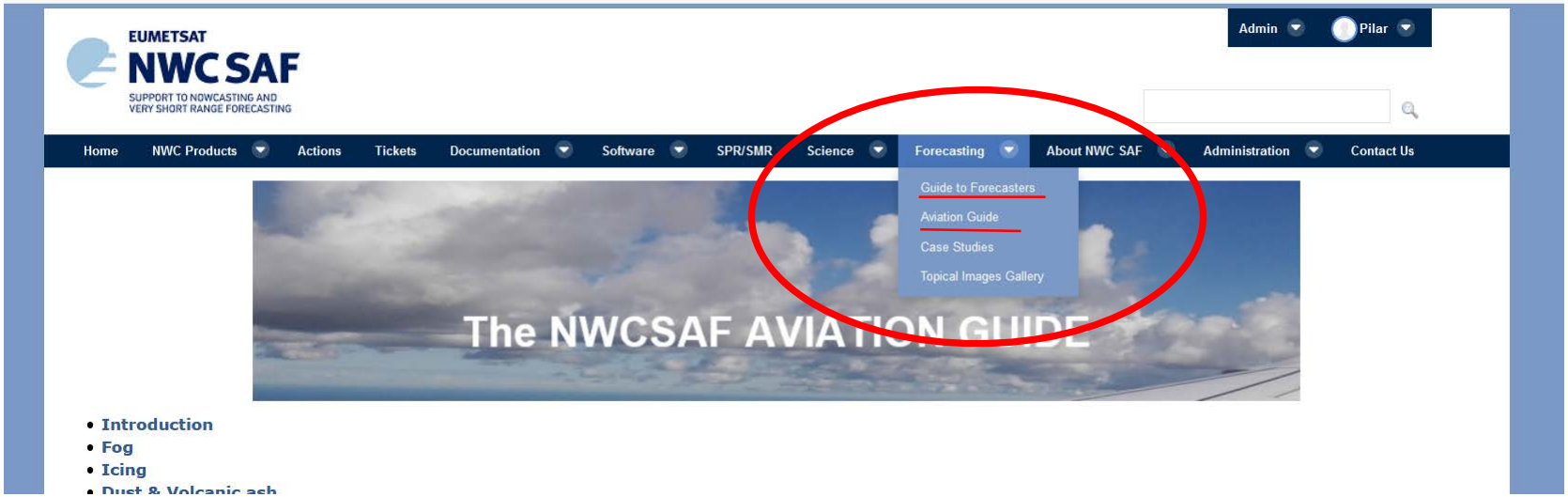
NWC SAF training

Other training events with NWCSAF members participation:

- Training event on satellite monitoring and nowcasting of high impact weather events for National Hydrometeorological Services of CIS countries. Moscow, Balashiha, 4 – 7 June 2019 Participation of Javier García Pereda, Practical Trainings on “EUMETSAT Data and Image Resources: NWCSAF Products for Nowcasting in CIS countries with MSG/IODC and Himawari”

- International workshop entitled “Nowcasting, Seamless Forecasting and Warning Services” under the Voluntary Cooperation Programme (VCP) of the World Meteorological Organization (WMO) during 3-6 December 2020. Lectures of Xavier Calbet on satellite analysis and nowcasting products at the workshop.

NWC SAF guides



http://www.nwcsaf.org/web/guest/practical-guide

https://cwg.eumetsat.int/satellite-guidance/ Convection Working Group guide

http://www.nwcsaf.org/web/guest/aviation-guide NEW!

NWC SAF Testbeds

To establish a communication channel between developers and forecasters

Testbeds done

- November 2016, Malaga, Spanish edition
- Participation of NWC SAF products in 2017 European Severe Storm Laboratory (ESSL) Testbed
- Aviation Testbed in AEMET (Valencia, Spain): Application of the NWC SAF products to forecast for aviation

Testbeds planned:

- We plan to participate in 2020 ESSL Testbed with the new version of NWC SAF products (GEO v2018) and a new of NWC SAF CRR-Ph to be compared with the operational one.

Users Requirements Collection

All the participants are requested to provide users requirements for next phase (2022-2027) regarding

- improvements in current nowcasting products
- new nowcasting products
- technical improvements
- improvements in current services
- new services
- Interest in participating in testbeds

And taking into account the new era EUMETSAT satellites capacities

Users Requirements Collection

All the Workshop participants (face-to-face and online) have received a mail with the following link to a google drive document.

https://docs.google.com/document/d/127uh7iCmXARBQ6-p7y2ilv5MIwEGowZv0xhsyYYAsWA/edit?usp=sharing

I strongly ask you to provide requirements in the mentioned document indicating:

- Name and affiliation
- The requirement/need
- The SW package, if proceed
- A e-mail address to contact you (volunteer)

We can use the working session on Wednesday to provide requirements and to start discussion on them

The document will be open till 20 March to provide requirements

THANK YOU VERY MUCH FOR YOUR ATTENTION!