

Nowcasting Satellite Application Facility (NWC SAF) in the European Weather Cloud (EWC)

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NWC SAF Scientific Coordinator

EWC Workshop

26 Sep 2023

Meet the SAFs



AC SAF

Atmospheric Composition Monitoring

The AC SAF processes satellite data on ozone, other trace gases, aerosols and ultraviolet data.

[Learn more about AC SAF](#)



CM SAF

Climate Monitoring

The CM SAF generates and archives high-quality climate datasets.

[Learn more about CM SAF](#)



LSA SAF

Land Surface Analysis

The LSA SAF exploits remotely-sensed data on land, land-atmosphere interactions and biosphere applications.

[Learn more about LSA SAF](#)



OSI SAF

Ocean and Sea Ice

The OSI SAF provides comprehensive information on the ocean-atmosphere interface.

[Learn more about OSI SAF](#)



NWP SAF

Numerical Weather Prediction

The NWP SAF supports the interface between satellite data and European activities in NWP.

[Learn more about NWP SAF](#)



ROM SAF

Radio Occultation Meteorology

The ROM SAF generates and archives high-quality GNSS Radio Occultation (RO) data for NWP.

[Learn more about ROM SAF](#)



NWC SAF

Nowcasting and Very Short Range Forecasting

Nowcasting is a weather forecast for the next few hours, based on current information.

[Learn more about NWC SAF](#)



H SAF

Operational Hydrology and Water Management

The H SAF generates and archives datasets and products for operational hydrological applications.

[Learn more about H SAF](#)

EUMETSAT SAF Network

The eight EUMETSAT SAFs provide users with operational data and software products, each one for a dedicated user community and application area.

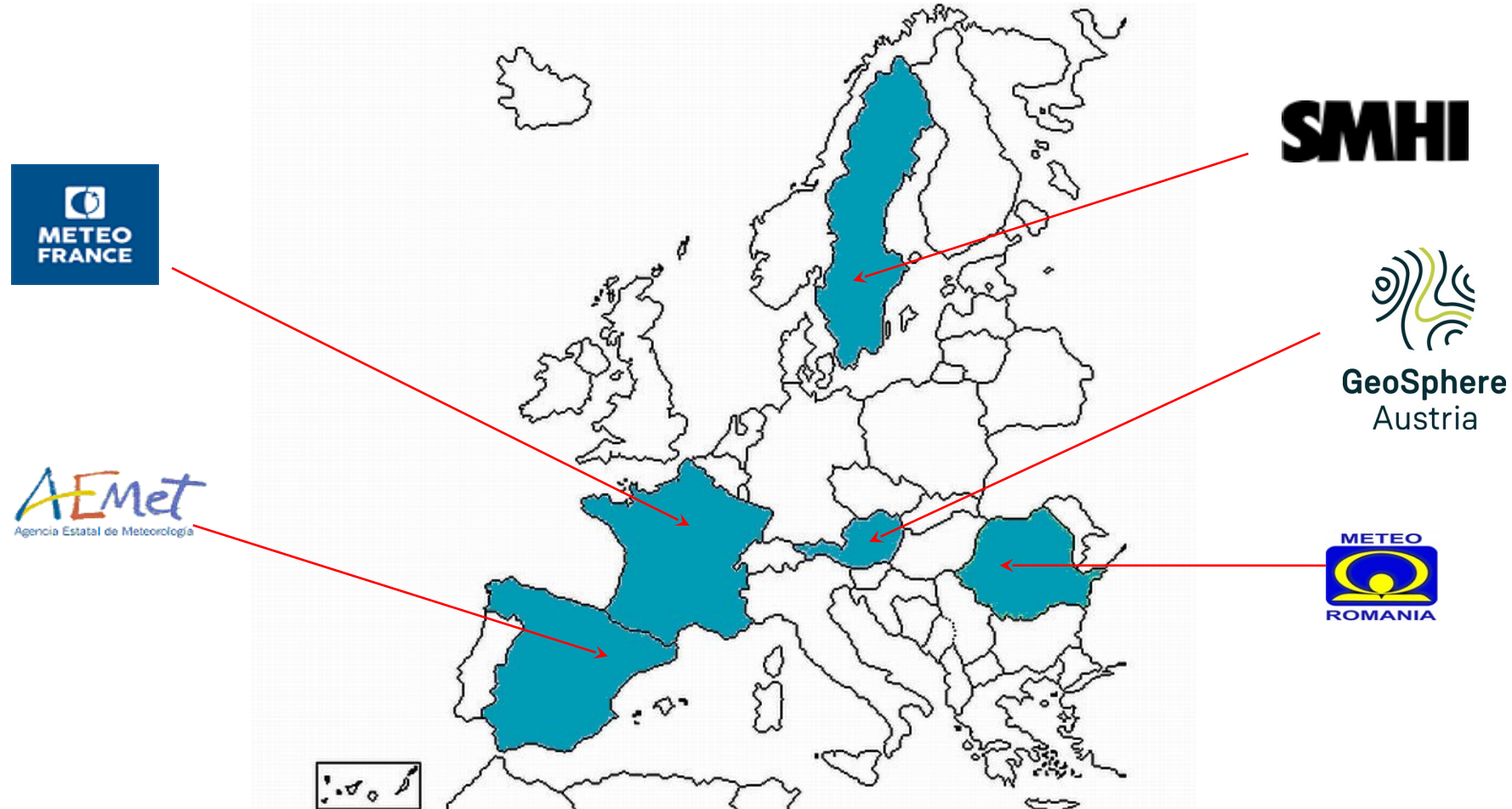
The SAFs are located within the National Meteorological Services (NMS) of EUMETSAT Member States, or other agreed entities linked to a user community.

<https://www.eumetsat.int/about-us/satellite-application-facilities-safs>

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 GEOstationary and POLAR Satellites) freely distributed to registered users to generate satellite derived products with a direct application in Nowcasting
- ✓ IMPORTANT UPDATES to be seen today
- ✓ User support
- ✓ Training

NWC SAF Consortium



NWC SAF SW packages (delivered 2023)

Geostationary satellites

NWC SAF GEO v2021.2

- **MSG primary satellite**
- **MSG Rapid Scan Service**
(Latitudes **15 N** - 70 N)
- **MSG IODC**
- Other satellites (Himawari 9, GOES-16 and GOES-18)

Polar satellites

NWC SAF PPS v2021.3

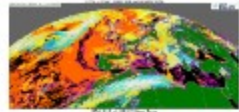
- Metop
- NOAA
- NPP
- JPSS
- EOS
- FY-3D

NWC SAF GEO

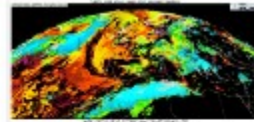
Cloud Products



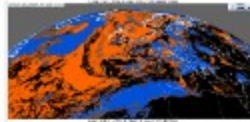
CMA: Cloud Mask



CT: Cloud Type

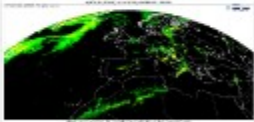


CTTH: Cloud Top Temperature and Height

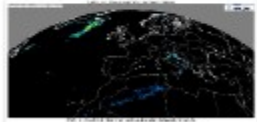


CMIC: Cloud Microphysics

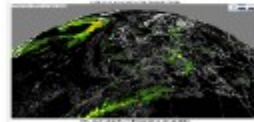
Precipitation Products



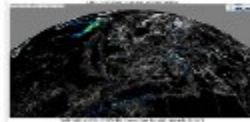
PC: Precipitating Clouds



CRR: Convective Rainfall Rate

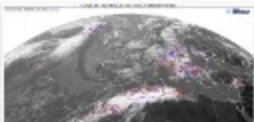


PC-Ph: Precipitating Clouds based on Cloud Physical Properties

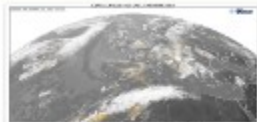


CRR-Ph: Convective Rainfall Rate based on Cloud Physical Properties

Convection Products

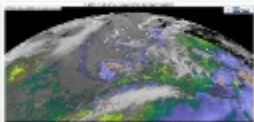


RDT: Rapid Developing Thunderstorms

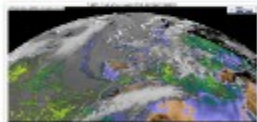


CI: Convection Initiation

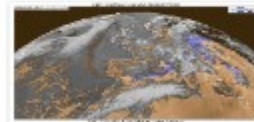
Satellite Humidity and Instability Products



ISHAI: Total Precipitable Water



ISHAI: Layer Precipitable Water

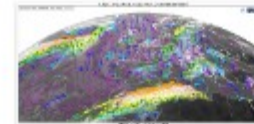


ISHAI: Stability Analysis Imagery

Winds Products



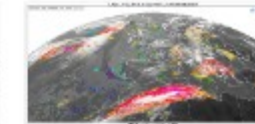
HRW: High Resolution Winds - AMV levels



HRW: High Resolution Winds - AMV speed

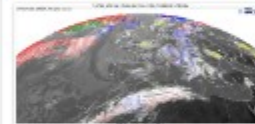


HRW: High Resolution Winds - Trajectories 1 hour

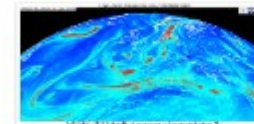


HRW: High Resolution Winds - Trajectories 3 hour

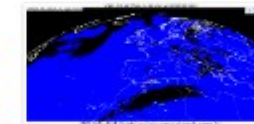
Conceptual Model Products



ASII: Automatic Satellite Image Interpretation

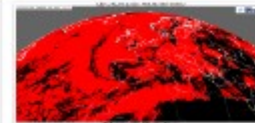


ASII-TF: Automatic Satellite Image Interpretation - Tropopause Folding detection

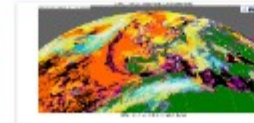


ASII-GW: Automatic Satellite Image Interpretation - Gravity Wave pattern detection

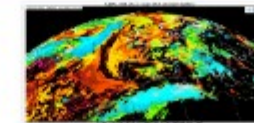
Extrapolated Imagery Products



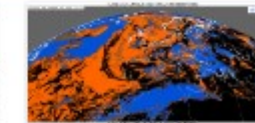
EXIM: Cloud Mask



EXIM: Cloud Type



EXIM: Cloud Top Temperature and Height

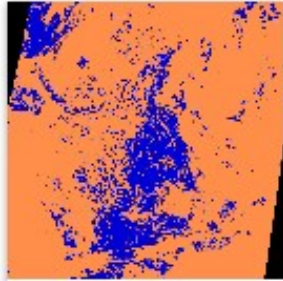


EXIM: Cloud Phase

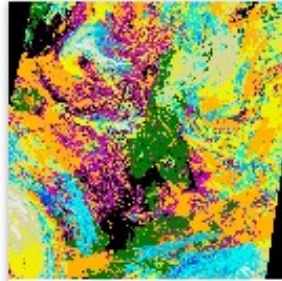
Available in NRT at nwc-saf.eumetsat.int
And a two years rolling archive

NWC SAF PPS Products

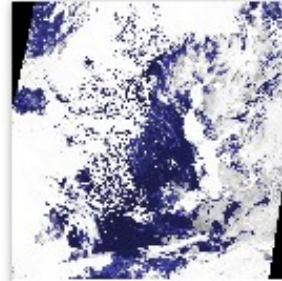
Cloud Products



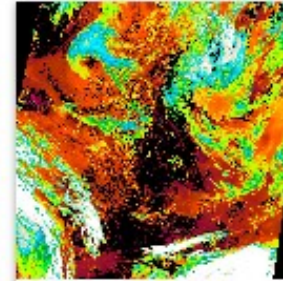
**CMA: Cloud
Mask**



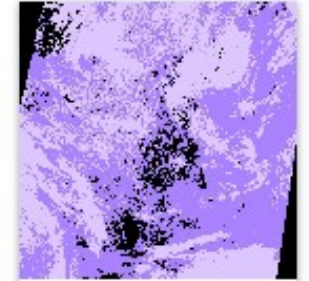
**CT: Cloud
Type**



**CMA-prob:
Cloud
Probability**



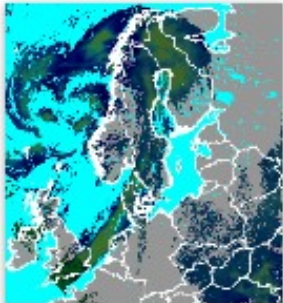
**CTTH: Cloud
Top
Temperature
and Height**



**CPP: Cloud
Physical
Properties**



Precipitation Products



**PC:
Precipitating
Clouds**



Available in NRT at nwc-saf.eumetsat.int

NWC SAF services. (nwc-saf.eumetsat.int)

EUMETSAT NWCSAF
SUPPORT TO NOWCASTING AND VERY SHORT RANGE FORECASTING

Home NWC Products **Actions** Tickets Documentation Software SPR/SMR

Tickets List

Sender: Date From: Date To: Package: Item: Type:

Tags: Subject:

Show entries

Sender	Date	Subject	Pack
psdnmi	2021/08/26	Looking for CMA prob product	PPS
btdwd	2021/08/18	CT: old HDF5 format possible?	GEO
Artur	2021/08/12	SAFNWCTM stopping	GEO
psms	2021/07/27	file names/naming conventions	GEO
			GEO
			GEO
			PPS
			GEO
			GEO
			GEO
			GEO
			GEO

EUMETSAT NWCSAF
SUPPORT TO NOWCASTING AND VERY SHORT RANGE FORECASTING

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The NWCSAF AVIATION GUIDE

- Introduction
- Fog
- Icing
- Dust & Volcanic ash
- Storm & Convection
- Turbulence
- Wind

EUMETSAT NWCSAF
SUPPORT TO NOWCASTING AND VERY SHORT RANGE FORECASTING

Home NWC Products Actions Tickets Documentation Software SPR/SMR Science Forecasting

NWCSAF Software Downloads

Welcome to the NWCSAF SW packages and patches page.

Please click in the links below to access to the GEO or PPS SW and related documentation:

- [NWCSAF/GEO Software Package](#)
- [NWCSAF/PPS Software Package](#)

Foreseen dates for SW packages release can be consulted in section "CDOP-3 Objectives & Planning" in this [link](#).

Thanks for your cooperation.

EUMETSAT NWCSAF
SUPPORT TO NOWCASTING AND VERY SHORT RANGE FORECASTING

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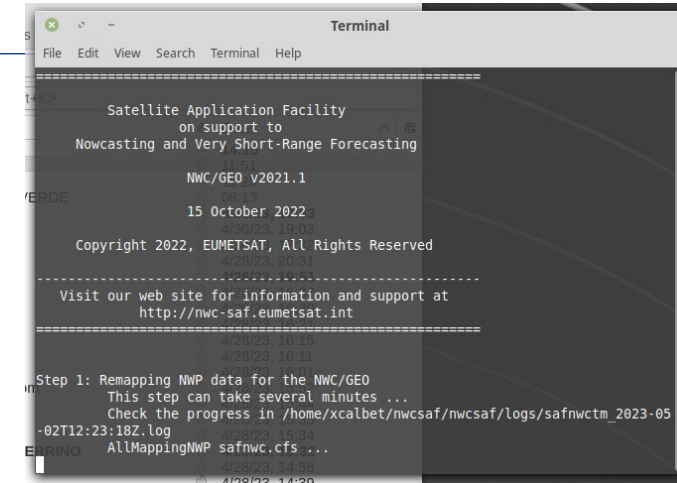
Guide to Forecasters

[Practical Guide to Forecasters \(Extended Version\)](#)

[Practical Guide to Forecasters \(Shortened Version\)](#)

Two ways to use NWC SAF GEO products

1) Traditional: Download and run locally the NWC SAF GEO software



```
Terminal
File Edit View Search Terminal Help
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Satellite Application Facility
on support to
Nowcasting and Very Short-Range Forecasting

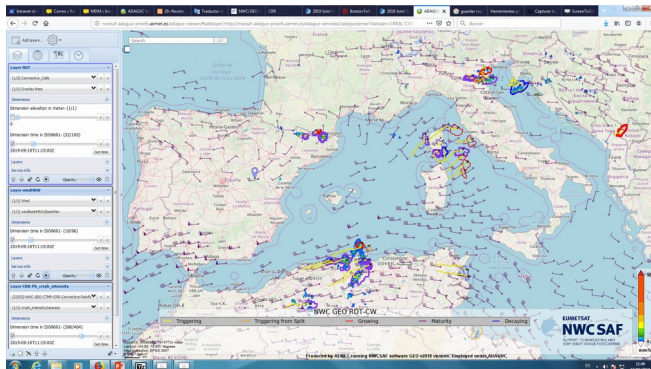
NWC/GEO v2021.1

15 October 2022

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Visit our web site for information and support at
http://nwc-saf.eumetsat.int
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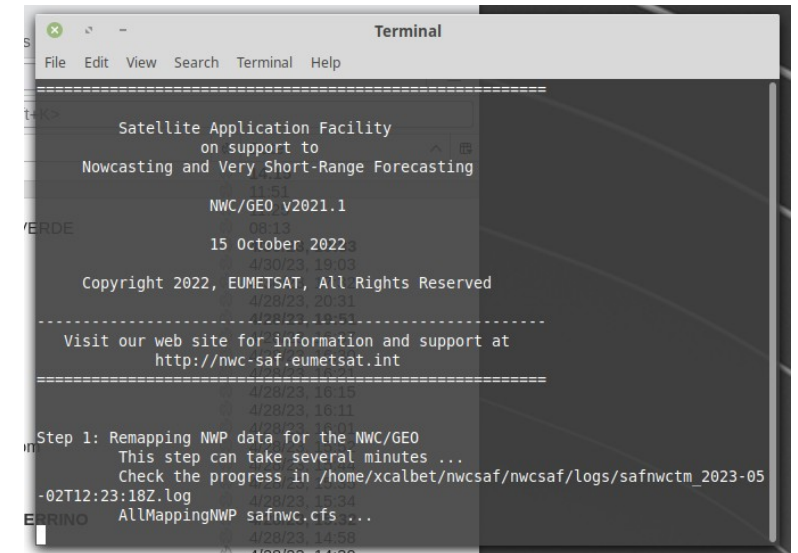
4/28/23 16:11
Step 1: Remapping NWP data for the NWC/GEO
This step can take several minutes ...
Check the progress in /home/xcalbet/nwcsaf/nwcsaf/logs/safnwcgm_2023-05
-02T12:23:18Z.log
ERRNO: AllMappingNWP safnwc.cfs ...
4/28/23 16:34
4/28/23 14:58
4/28/23 14:30
```



2) NEW!: View the NWC SAF GEO products in ADAGUC server in EWC

How to run NWC SAF GEO SW at your site

- Register as a user (it is free and can be done online)
- Download the software from the web site (nwc-saf.eumetsat.int)
- Install the software
- Set the configuration of your interest
 - Satellite to be used
 - Products to be generated
 - Geographical area where to generate the products
- Set up the Input data needed
 - Satellite data (HRIT MSG files)
 - A numerical model (ECMWF or GFS for example)
 - This is by far the most difficult step



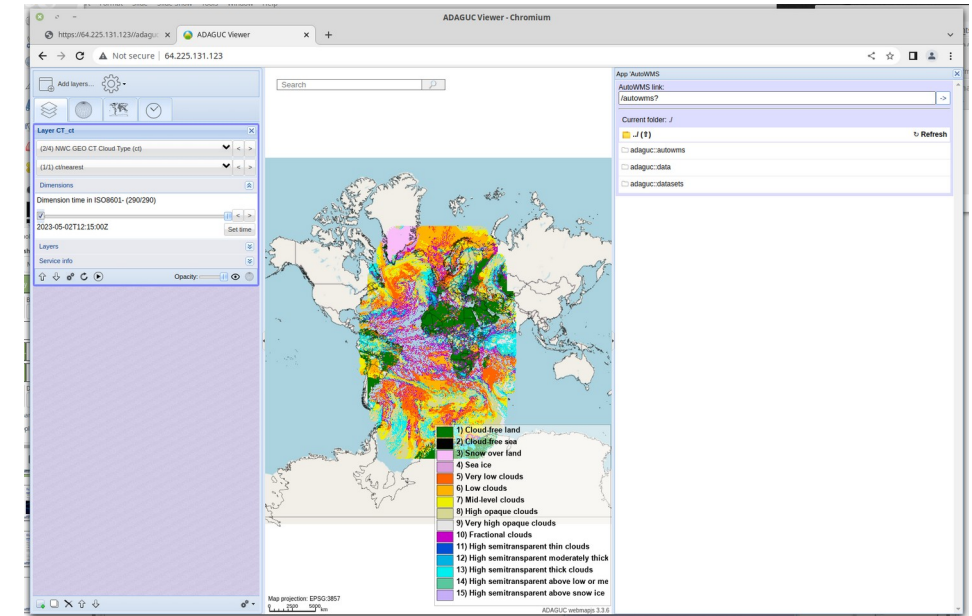
```
Terminal
File Edit View Search Terminal Help
=====
Satellite Application Facility
on support to
Nowcasting and Very Short-Range Forecasting
NWC/GEO v2021.1
15 October 2022
Copyright 2022, EUMETSAT, All Rights Reserved
Visit our web site for information and support at
http://nwc-saf.eumetsat.int
=====
Step 1: Remapping NWP data for the NWC/GEO
This step can take several minutes ...
Check the progress in /home/xcalbet/nwcsaf/nwcsaf/logs/safnwc2m_2023-05-02T12:23:18Z.log
AllMappingNWP safnwc.cfs ...
```

For MTG, EUMETCast High Volume will be needed!

The NWC SAF Team offers support if you encounter any problem

The software is meant to be run in **NRT operationally** but also allows the generation of products in **offline mode**.

- NWC SAF products are generated in EWC:
 - Full Disc
 - MSG Zero Longitude
 - ECMWF as NWP
- Go to <https://adaguc.nwcsaf.eumetsat.ewcloud.host/>
(Good Internet Connection)
- Do one of the following:
 - More user friendly: Click on “Add Layers” on the top left → Select a product
 - More products: Click on `adaguc::datasets` → Select a product
- Future:
 - Nowcasting Experimental Platform. New products will be tested (your product welcome!). Please contact: xcalbeta@aemet.es or safnwchd@aemet.es
 - Integrate with EUMETView
 - Include NWC SAF PPPS (Polar) products
 - To be used for training courses in Africa



You can:

- Zoom in/out: scroll button
- Move: click and drag
- Play animation: click on “play” icon
- Change opacity: “Opacity” slide bar
- Hide layer: click on the “Eye” button
- Update to latest data: click on the round arrow

Other considerations

- ADAGUC (KNMI) and all the utilities to ingest the data, ADAGUC-utilities (AEMET), are all open source
- Therefore you can install the NWC SAF GEO software and ADAGUC server in your institution and serve the data to other nearby countries
- This regional solution or the ADAGUC server in the EWC (<https://adaguc.nwcsaf.eumetsat.ewcloud.host/>) can constitute a Nowcasting environment to be used by the community
- If you want to add more products or services in the ADAGUC server in the EWC please let us know

Thank you very much for your attention!

More information in www.nwcsaf.org

You can contact us at

xcalbeta@aemet.es

safnwchd@aemet.es