

Introduction to the NWC SAF

NWC SAF Event Week EUMeTrain course

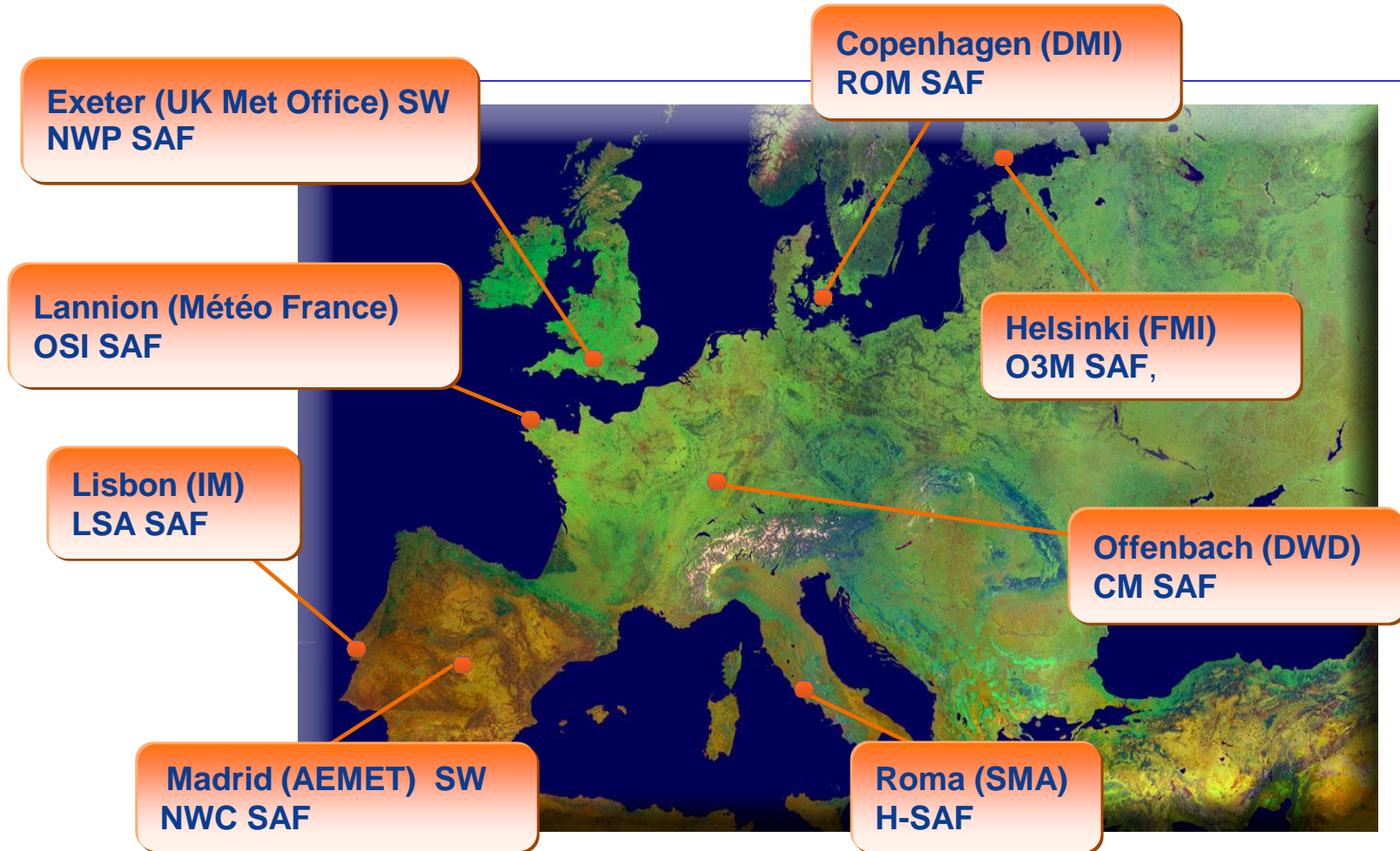
18-22 November, online

P. Fernández

Contents

- ✓ **SAF Network scope**
- ✓ **NWC SAF Overview**
- ✓ **Products**
- ✓ **Next versions 2014 & 2015**

EUMETSAT SAF NETWORK (Satellite Application Facility)



NWC SAF General Objectives

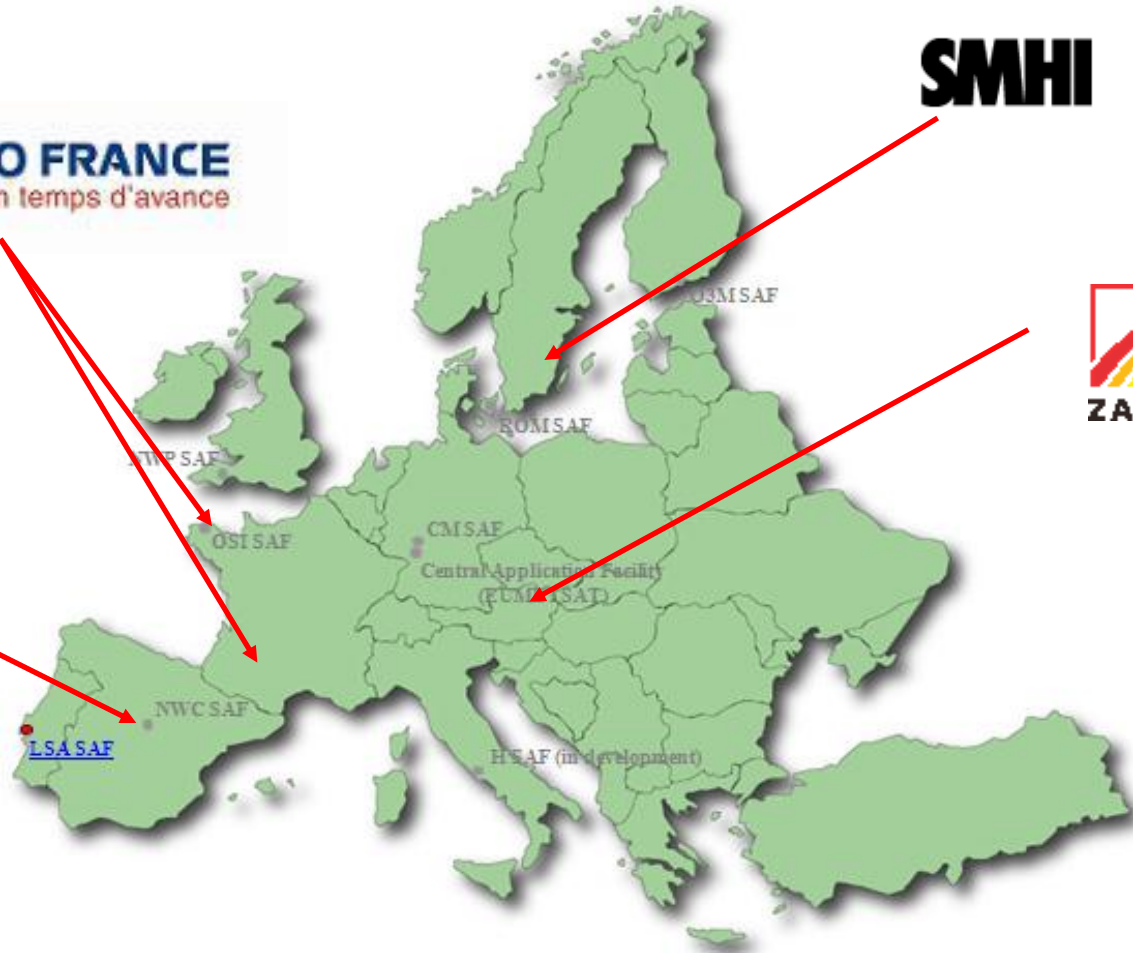
- ✓ **Development of Nowcasting products derived from both GEO and PPS satellite systems**
- ✓ **To be delivered to users as SW Packages**

Responsible for

- ✓ **Development and maintenance of the NWC products**
- ✓ **Development and maintenance of the SW Packages**
- ✓ **Users' support and training tasks**

NWC SAF Consortium

SMHI



NWC SAF Phases

1997-2002

DOP: Development Operations Phase

- No real MSG SEVIRI data, yes NOAA data
- MSG product development using similar satellite channels and simulations
- SW development

IOP: Initial Operations Phase

- Transition period between development and operations
- Product tuning and validation: (since May 2003 MSG)
- First SW releases
- User support and training

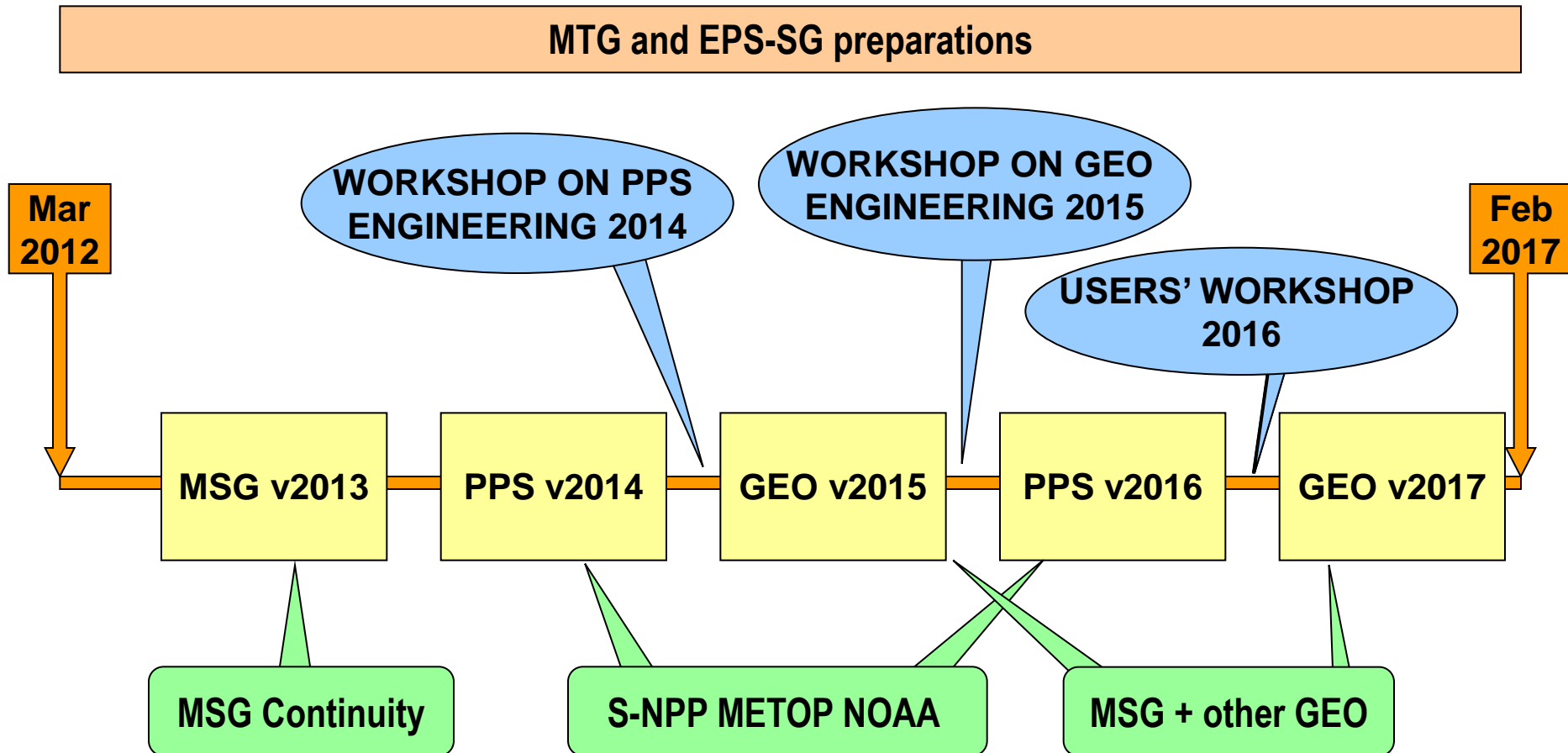
2002-2007

CDOP: Continuous Development and Operations Phase

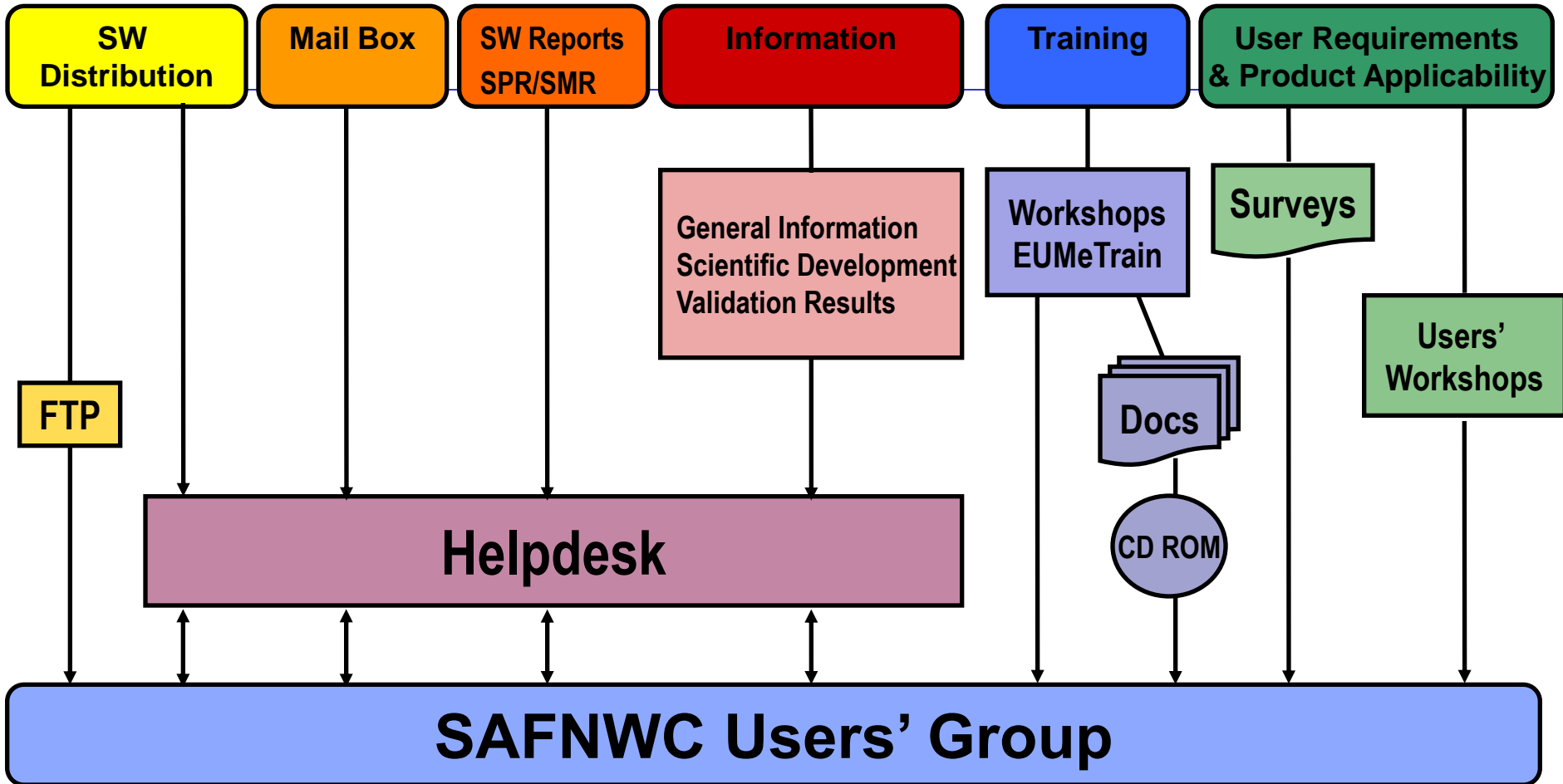
- Products and SW consolidation
- PPS products adapted to Metop and S-NPP
- User support and training

2007-2012

CDOP-2 overview & schedule



Services



96 users October 2013

Products generation

Products are generated in the users' premises

Features of the products:

- **Near Real Time (NRT)**
- **Full resolution**
- **Frequency can be selected by the user (default every repeat cycle)**
- **Region can be selected by the user**
- **Nominal and Rapid Scan**

http://www.nwcsaf.org

SAF NWC - Mozilla Firefox

Archivo Editar Ver Historial Marcadores Herramientas Ayuda

nwcsaf.org https://www.nwcsaf.org/HD/Main.jsp

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SAFNWC/MSG v2013 distributed 21/08/2013

Terminado

The EUMETSAT Network of Satellite Application Facilities

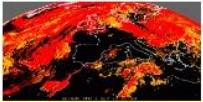
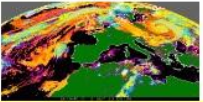
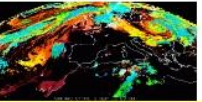
NWC SAF
Support to Nowcasting and Very Short Range Forecasting

SMHI




MAIL

MSG

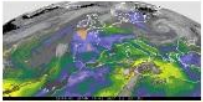
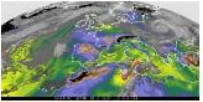
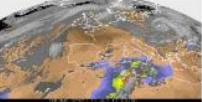
MSG Cloud Products

Cloud Mask (Description)  Cloud Type (Description)  Cloud Top Temperature and Height (Description) 



MSG Precipitation Products

Precipitating Clouds (Description)  Convective Rainfall Rate (Description)  Prec. Prod. Cloud Physical Properties (Description) 

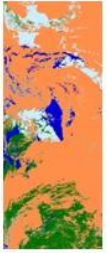
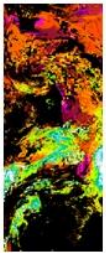
MSG Clear Air Products Physical Retrieval


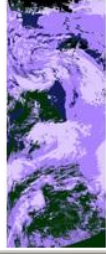
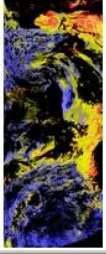
Total Precipitable Water (Description)  Layer Precipitable Water (Description)  Stability Analysis Imagery (Description) 

MSG Winds, Conceptual Model and Convection Products

High Resolution Winds (Description)  Automatic Satellite Image Interpretation (Description)  Rapid Development Thunderstorms (Description) 

PPS

Cloud Mask (Description)  Cloud Type (Description)  Cloud Top Temperature and Height (Description) 

Precipitating Clouds (Description)  Cloud Physical Properties (CPh) (Description)  Cloud Physical Properties (LWP) (Description) 

Products responsibility



Clear Air, Precipitation, Wind MSG products



Clouds and Thunderstorm MSG products

SMHI

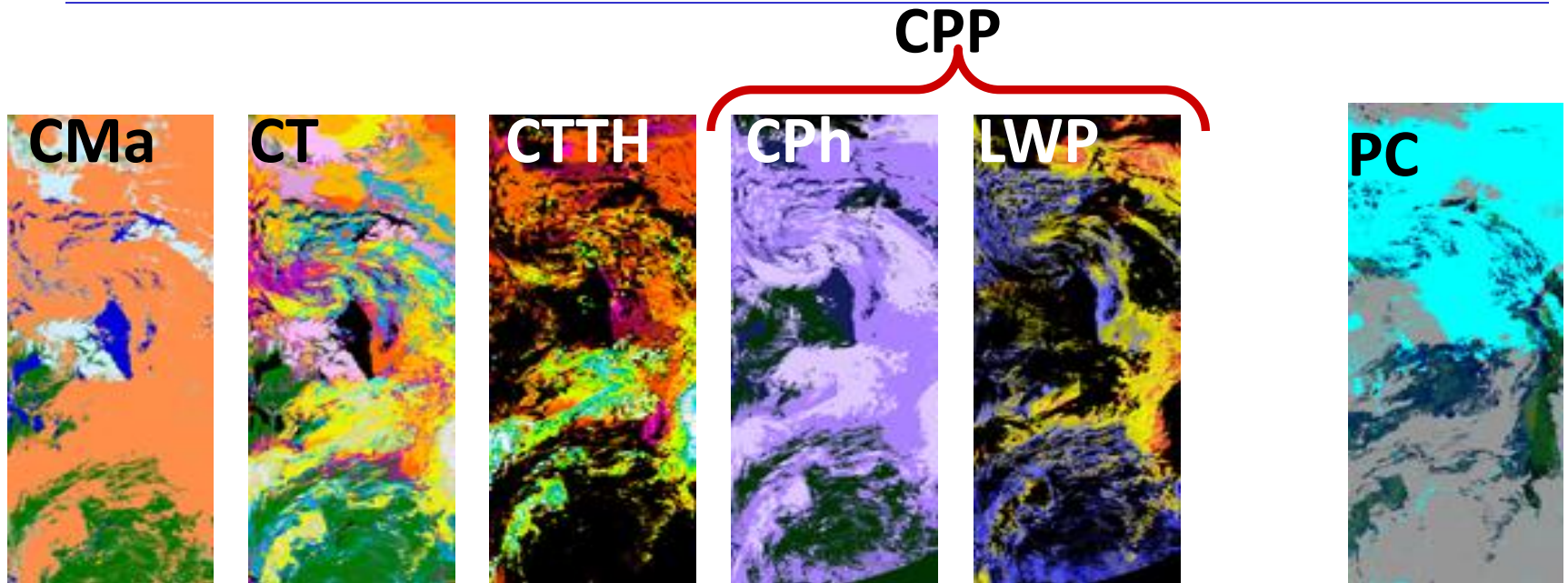
Cloud & Precipitation PPS products



Conceptual Model MSG products

Product Improvements v2014

PPS Cloud & Precipitation

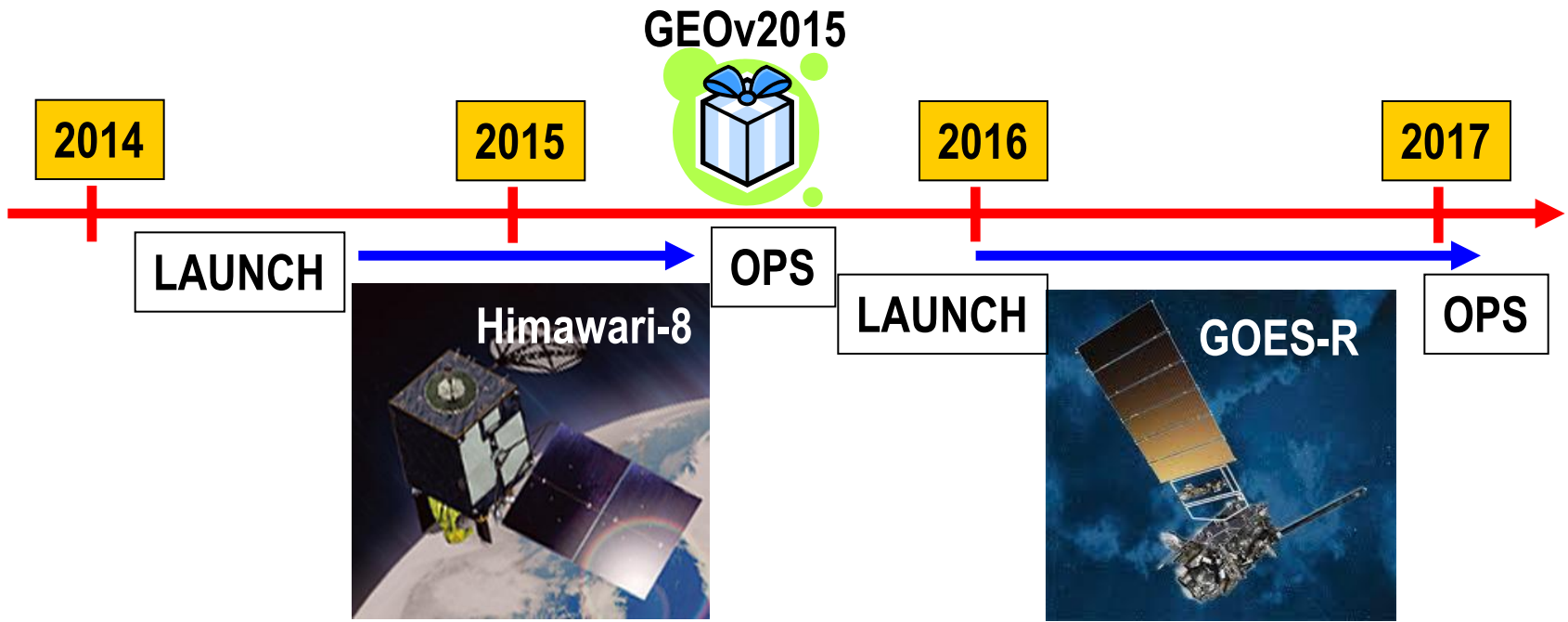
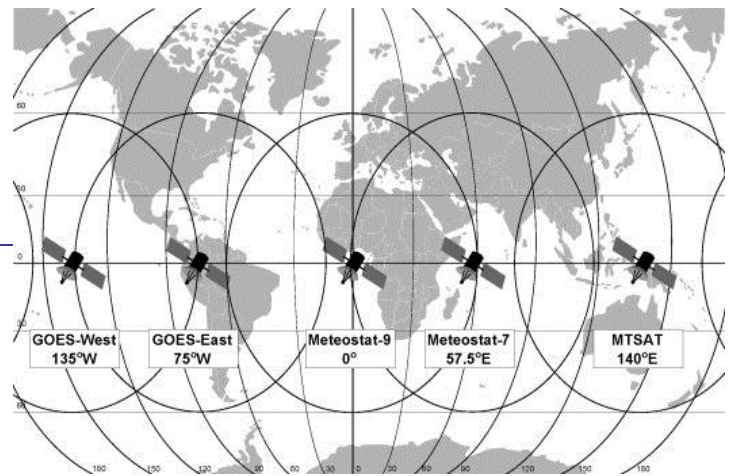


Fractional clouds
Multilevel clouds
Cloud height improvement

Microphysics Properties
Rain Rate output

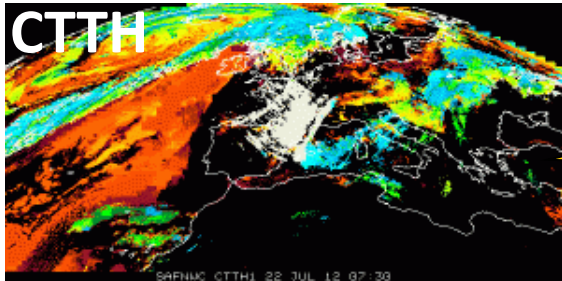
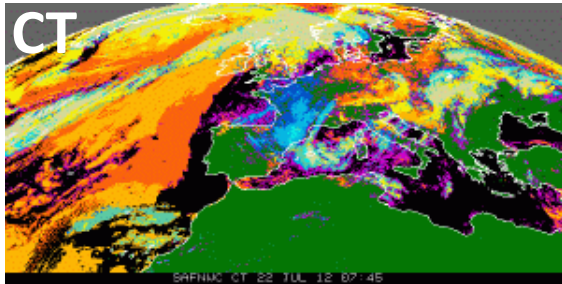
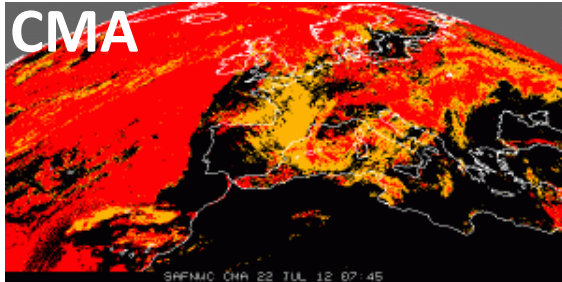
v2015:GEO extension

- 1. Generalise the NWC/MSG software to process the observations from a generic geostationary satellite
- 2. Products scientifically tuned (HRW->GOES-N)



Product Improvements v2015

GEO Cloud products



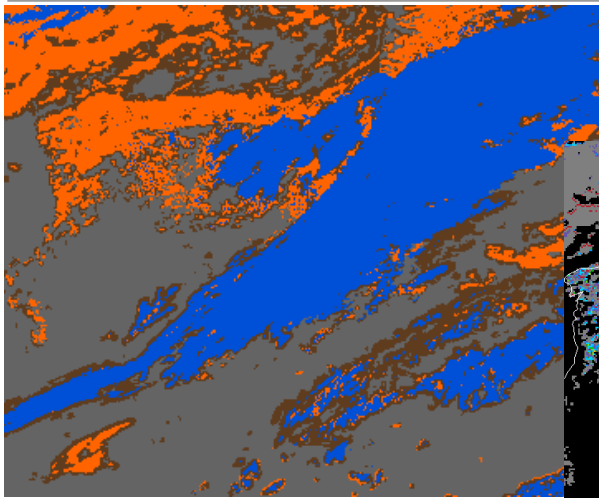
Better detected and classified cirrus

**Improvements Near-tropopause
(Overshooting tops)**

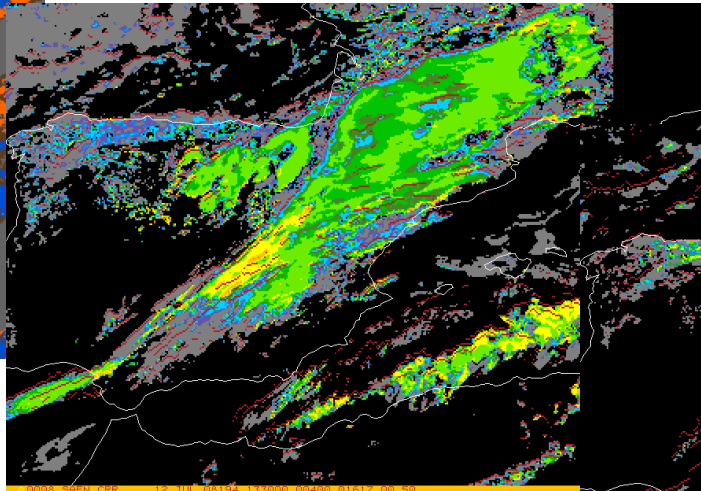
New Product v2015

GEO Cloud Microphysics (CMIC)

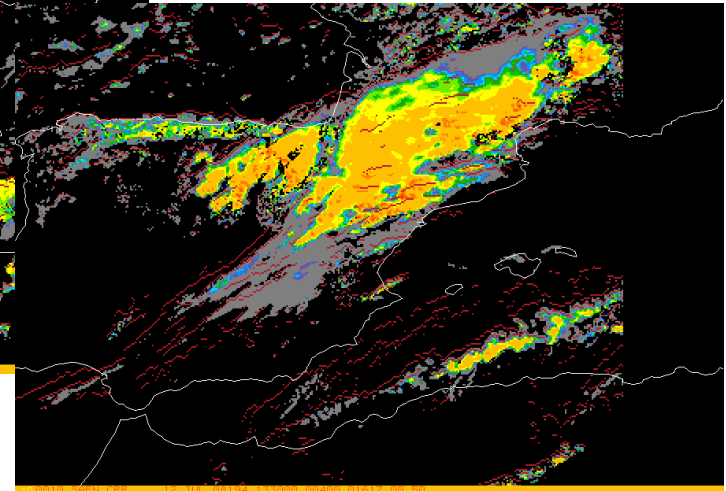
Cloud phase



Effective radius



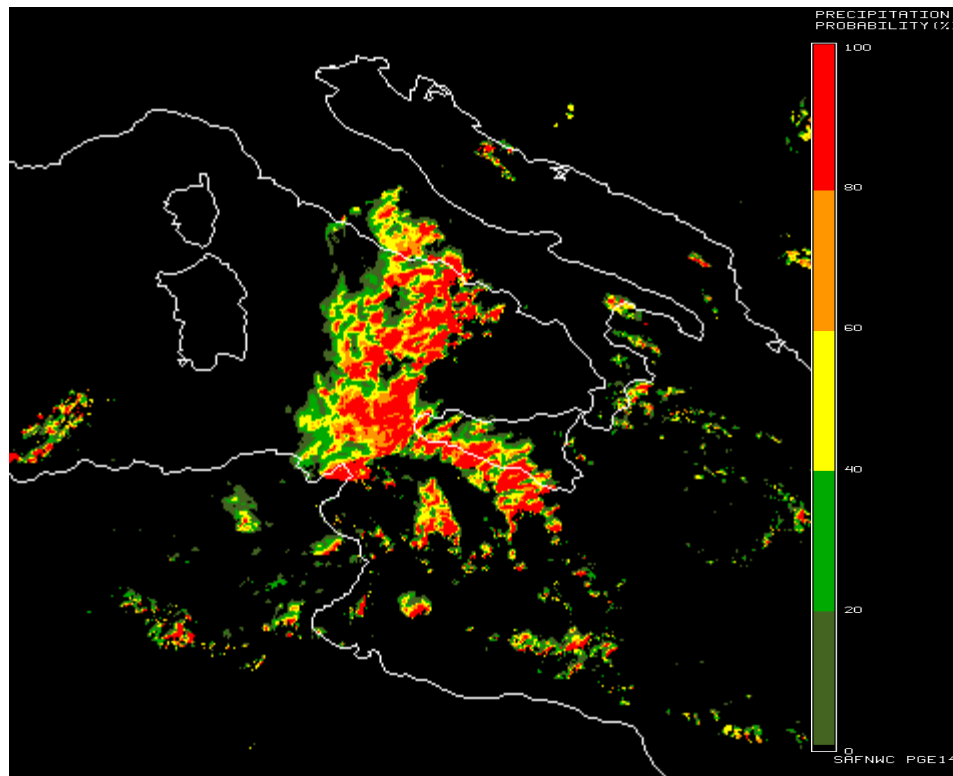
Condensed water path



New Product v2015

GEO Extrapolated Imagery (EXIM)

E.G. Precipitation Probability Forecast

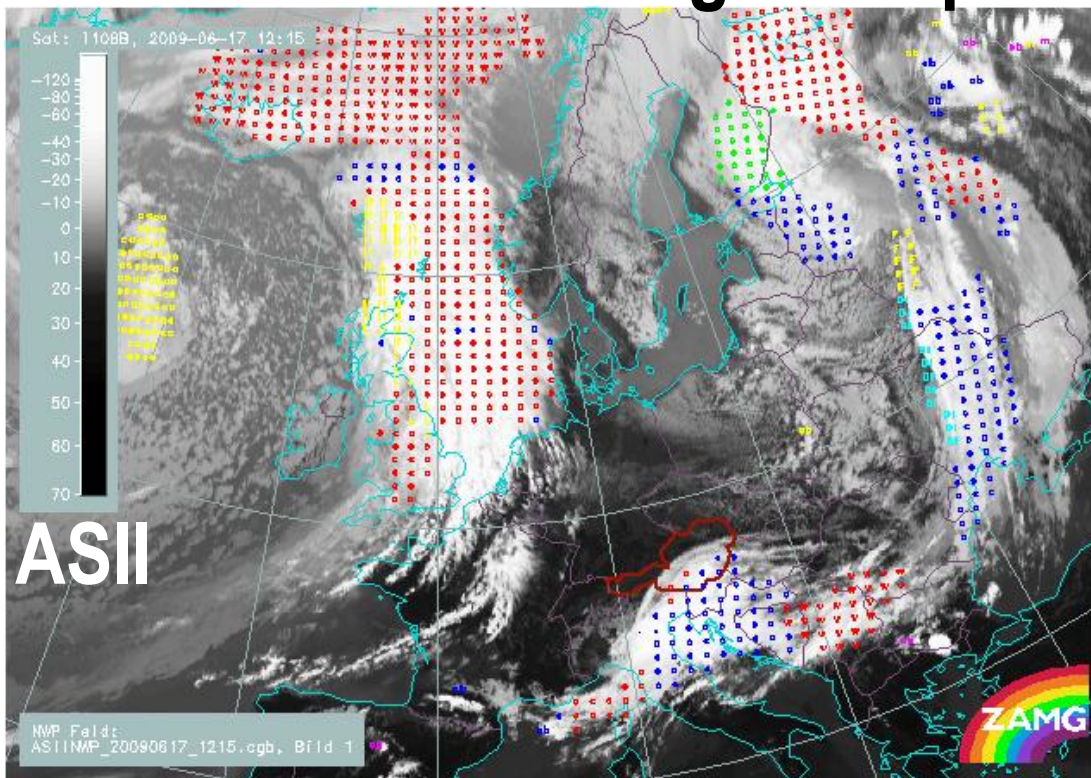


New Product v2015

GEO ASII-New Generation

Probability fields
Clear-air turbulence

Automatic Satellite Image Interpretation

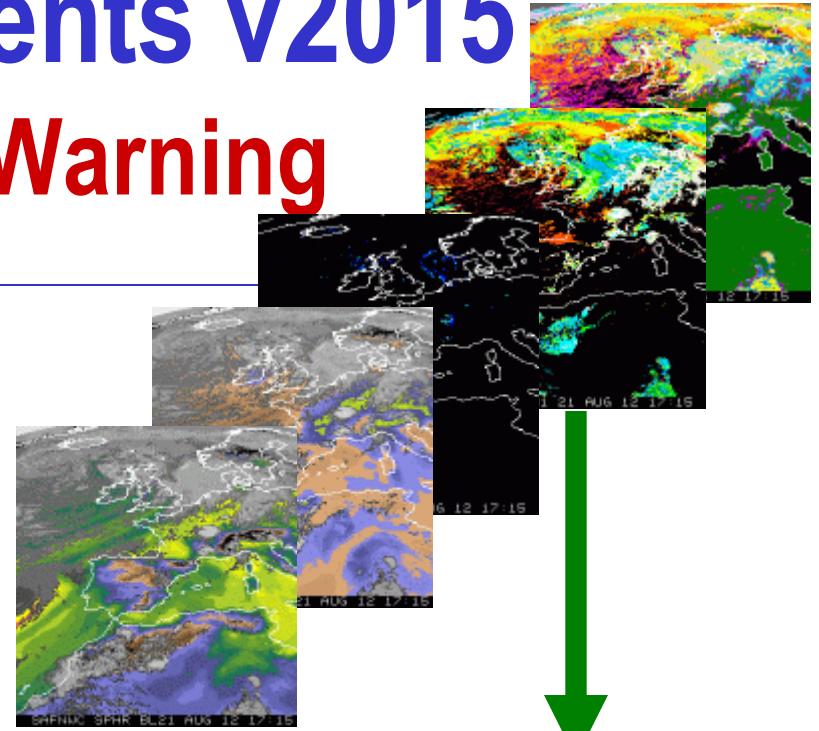
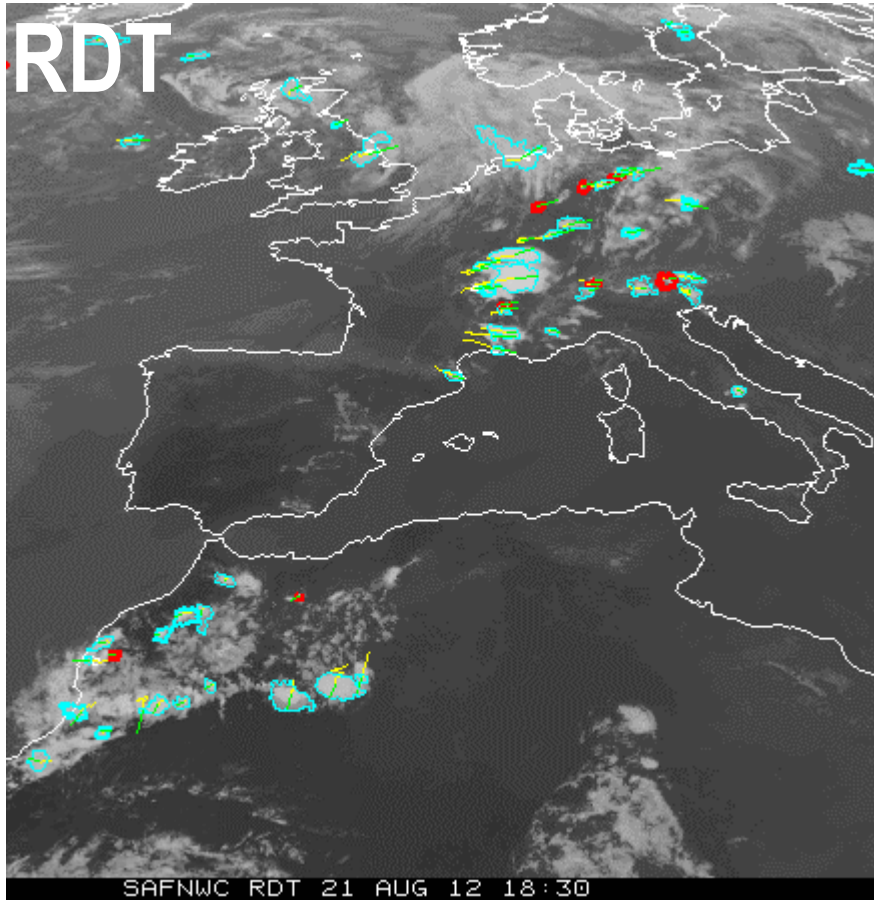


ASII-NG

Symbol:	Conceptual Model:
SAT + NWP:	
w (red)	warm front
c (blue)	cold front
c (red)	cold front in warm air advection
~ (magenta)	wave
~ (red)	developing wave
~ (green)	upper wave
o (green)	occlusion
DI (cyan)	dry intrusion
ec (cyan)	enhanced cumulus
m,cb,● (blue)	MCS,Cb (decaying stage, ● = embedded)
m,cb,● (yellow)	MCS,Cb (mature stage, ● = embedded)
m,cb,● (magenta)	MCS,Cb (mature stage, ● = embedded)
co (yellow)	comma cloudiness
L (yellow)	lee cloudiness
ji (yellow)	front intensification in left exit region of a Jet Streak
ul (yellow)	upper level low
z (yellow)	cold air cloudiness
F (yellow)	fibre

Product Improvements v2015

GEO RDT-Convection Warning



RDT-CW

Including:

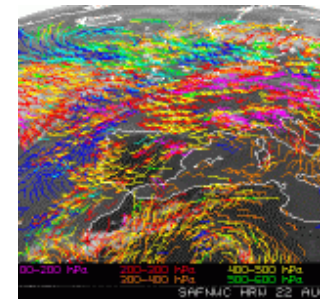
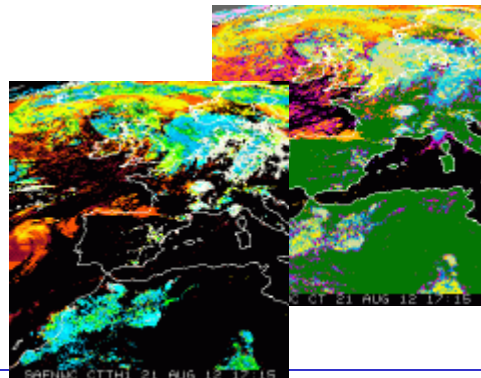
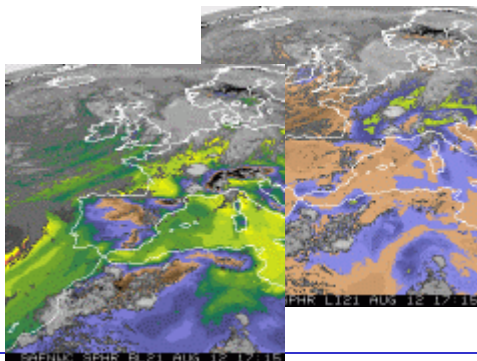
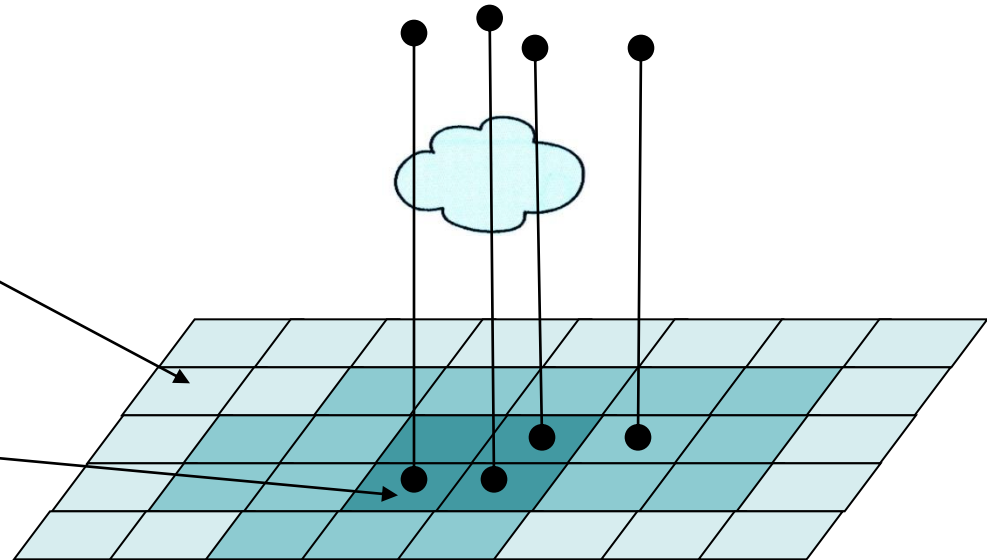
- Trajectories
- RDT forecast

New product v2015

GEO Convection Initiation (CI)

Low probability
to become a
thunderstorm

High probability
to become a
thunderstorm

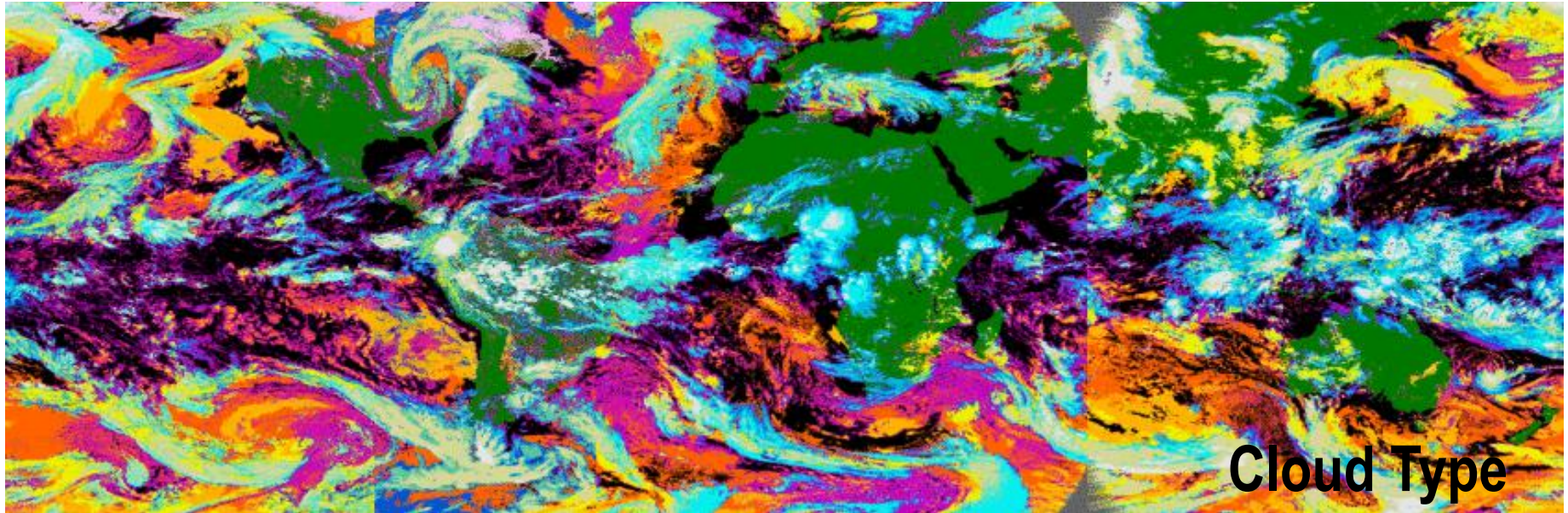


Conclusions

- ✓ **NWC SAF is a well consolidated project**
- ✓ **Products have very good quality**
- ✓ **Services provided are well appreciated**
- ✓ **New products required by the users will be implemented soon**

Your experience on applicability is very useful !!

THANKS FOR YOUR ATTENTION



GOES-W

GOES-E

MSG

MTSAT

GOES-W

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