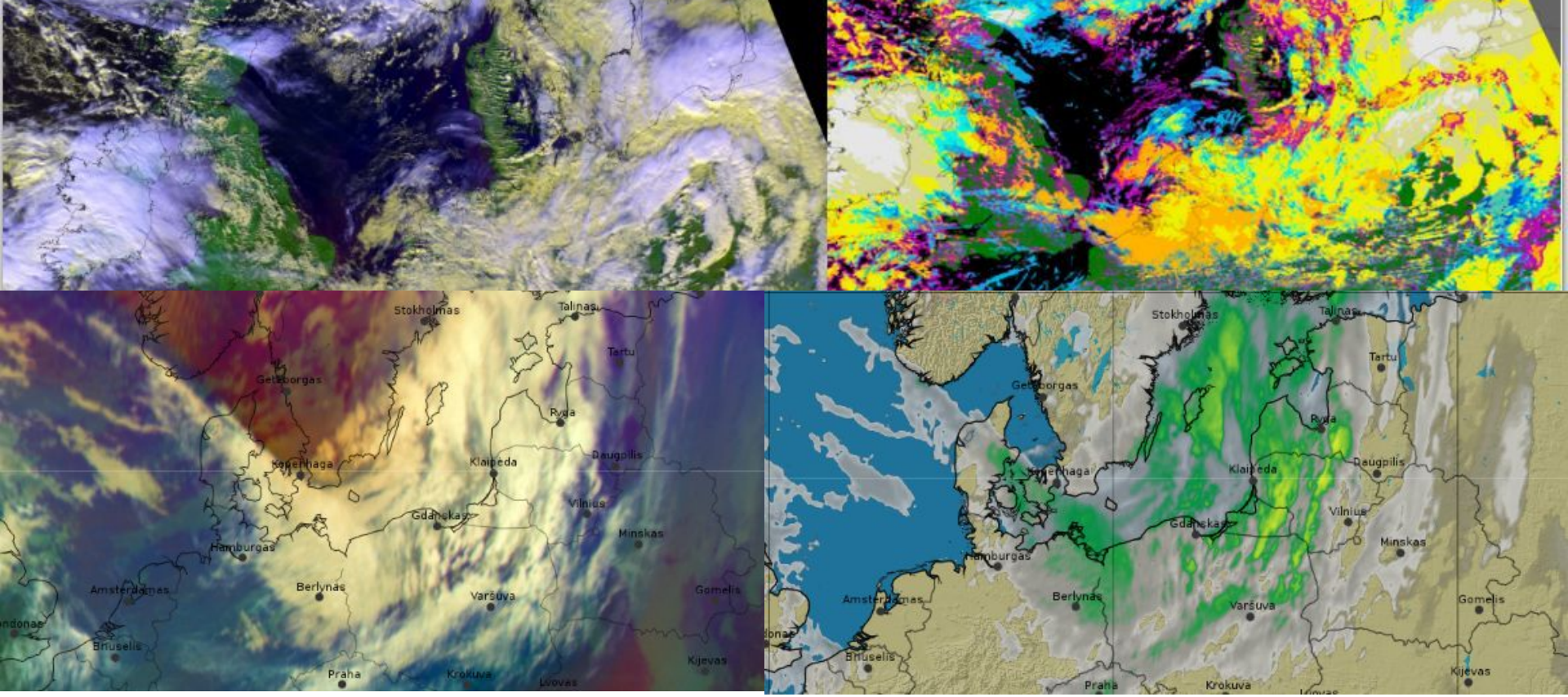


User experiences of SAF products and their implementation

J. Liukaitytė-Kukienė, PhD

Lithuanian Hydrometeorological Service under the Ministry of Environment

Vilnius university

Cooperation with Eumetsat

In December 2004, a Cooperating State Agreement was concluded

At the end of December 2011, Lithuania signed the accession agreement to become a full Member State of EUMETSAT by 1 January 2014

Satellite data in LHMT

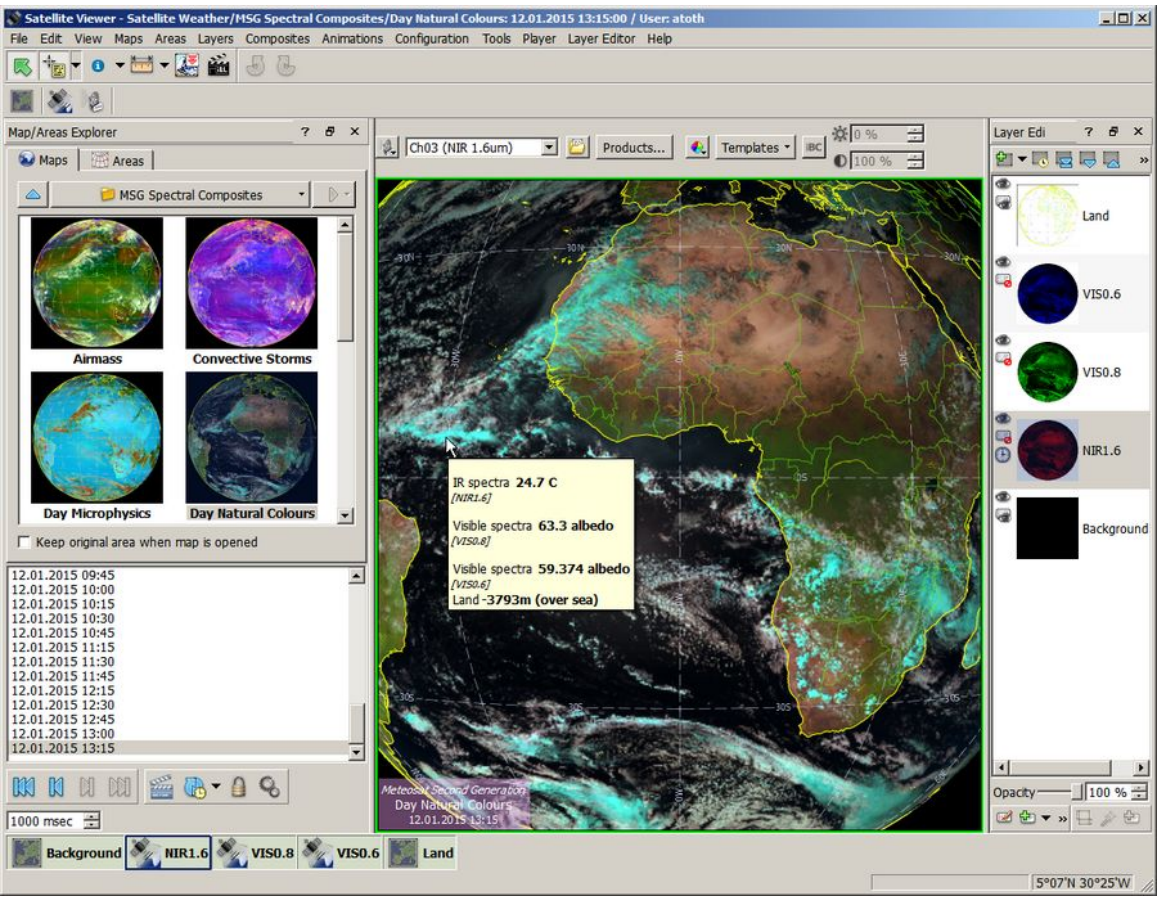
Data comming via **EUMETCAST:**

- Space-based observations from the Meteosat and Metop satellites.
- Global and regional marine meteorological and ocean surface products.
- Atmospheric instability products.
- NWC SAF (GEO v2016 in developing stage on local server)

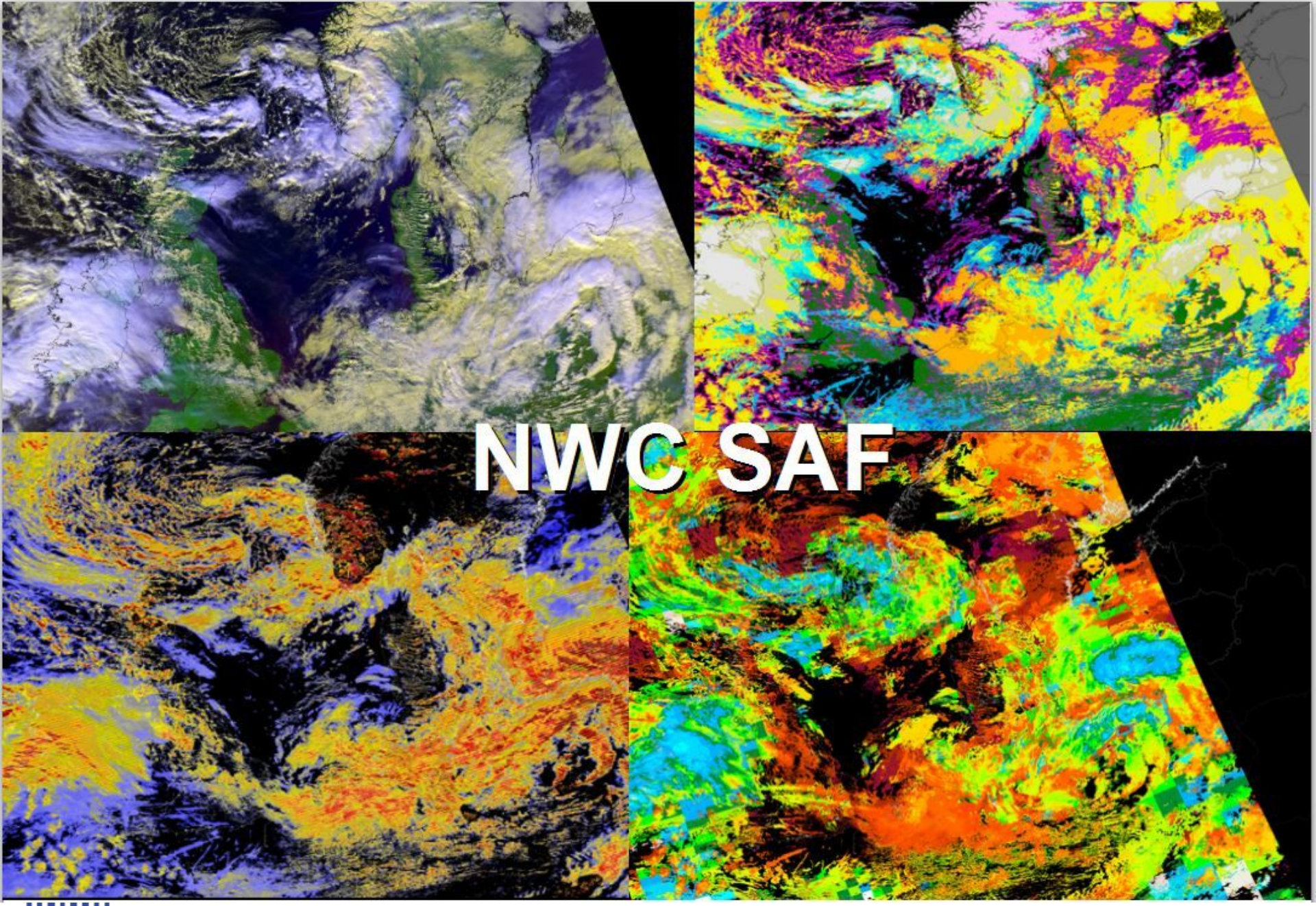
Software

- IBL “Visual Weather” – weather forecasters work station
  + IBL “Satellite weather”
- SCISYS “2met!®” - just for satellite data

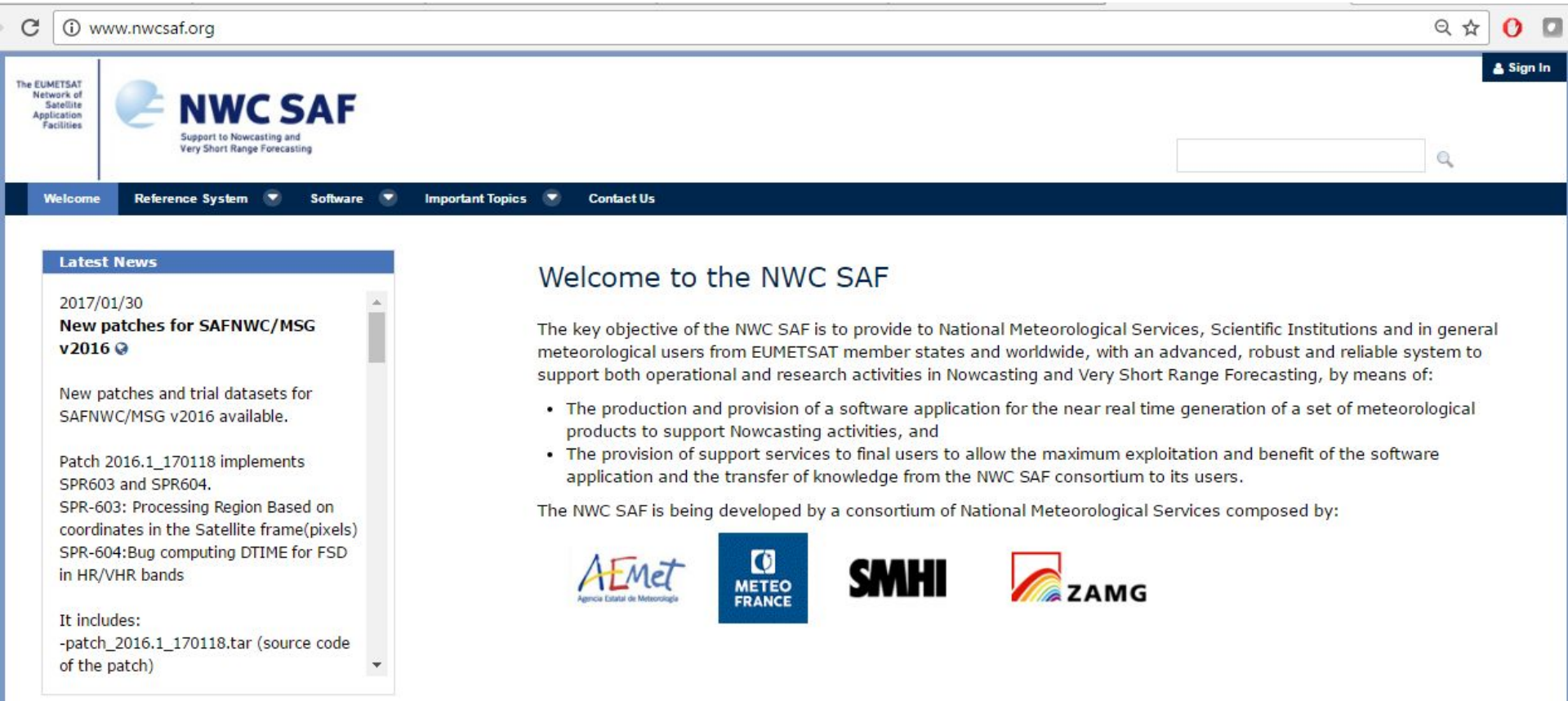
“Satellite weather”



- Easy displays various satellite data, creates products and RGB
- Adjusts the satellite display (change channel, increase contrast, etc)
- Overlays all data that is in the system
- Creates a horizontal cross-section of the displayed satellite data
- Supports SAF
- Doesn’t support polar satellite data at this moment


NWC SAF

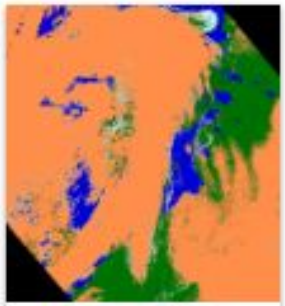
NWC SAF - the Satellite Application Facility on support to Nowcasting is a Consortium between Eumetsat and several National Meteorological Services.



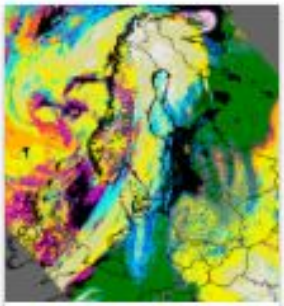
NWC SAF develops and maintains SW packages to generate satellite derived products on support to Nowcasting for GEO and Polar Satellites

NWC/PPS

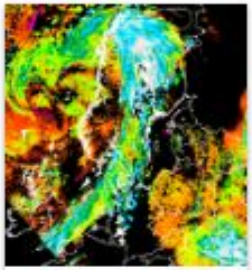
Cloud Products



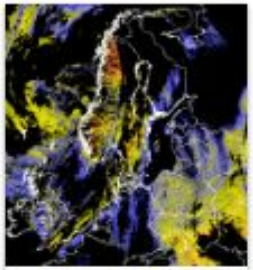
CMA: Cloud Mask



CT: Cloud Type

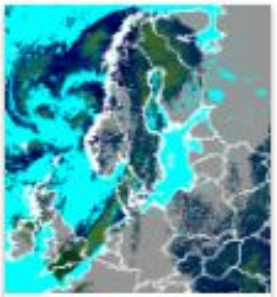


CTTH: Cloud Top Temperature and Height



CPP: Cloud Physical Properties

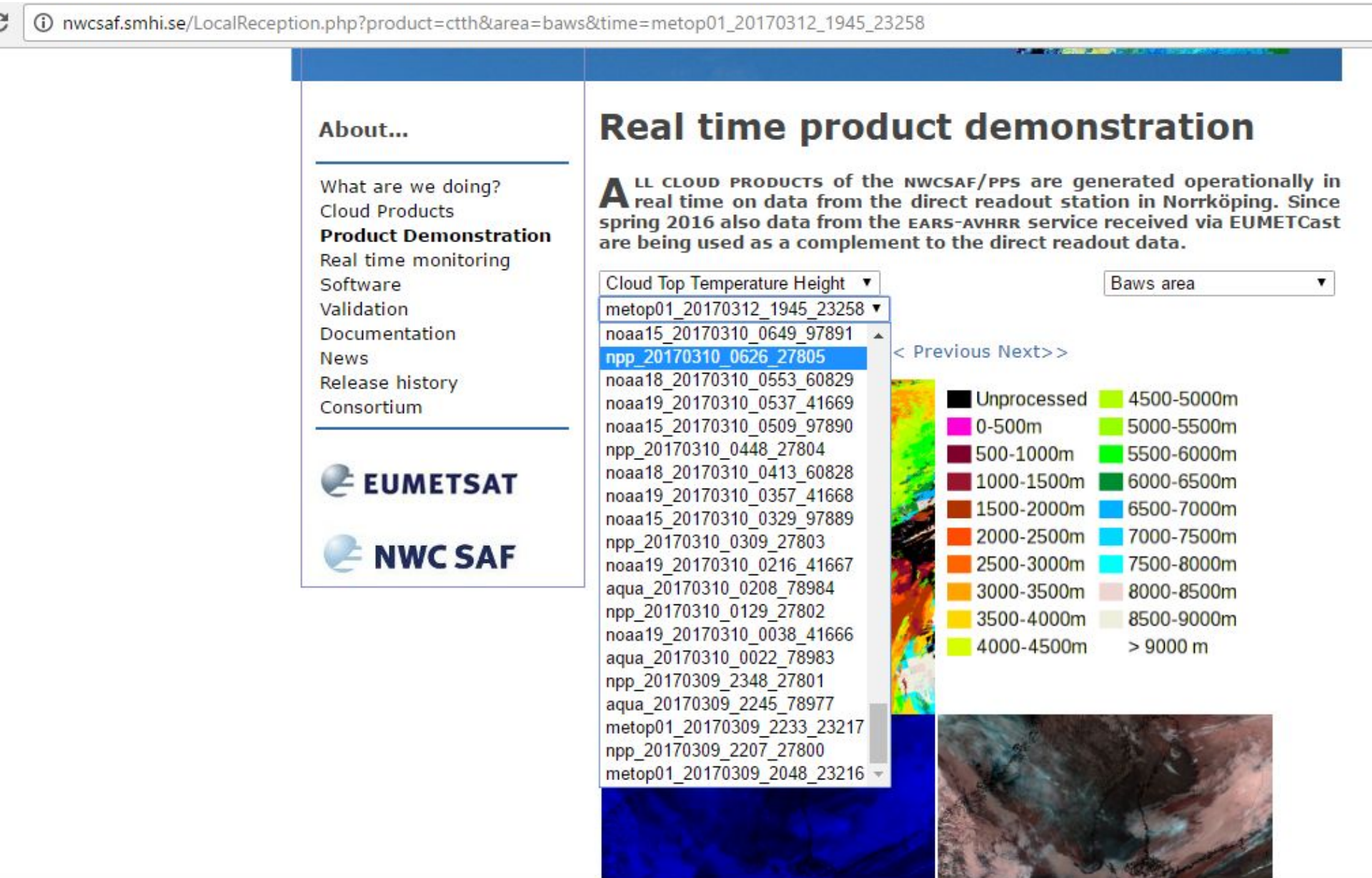
Precipitation Products



PC: Precipitating Clouds

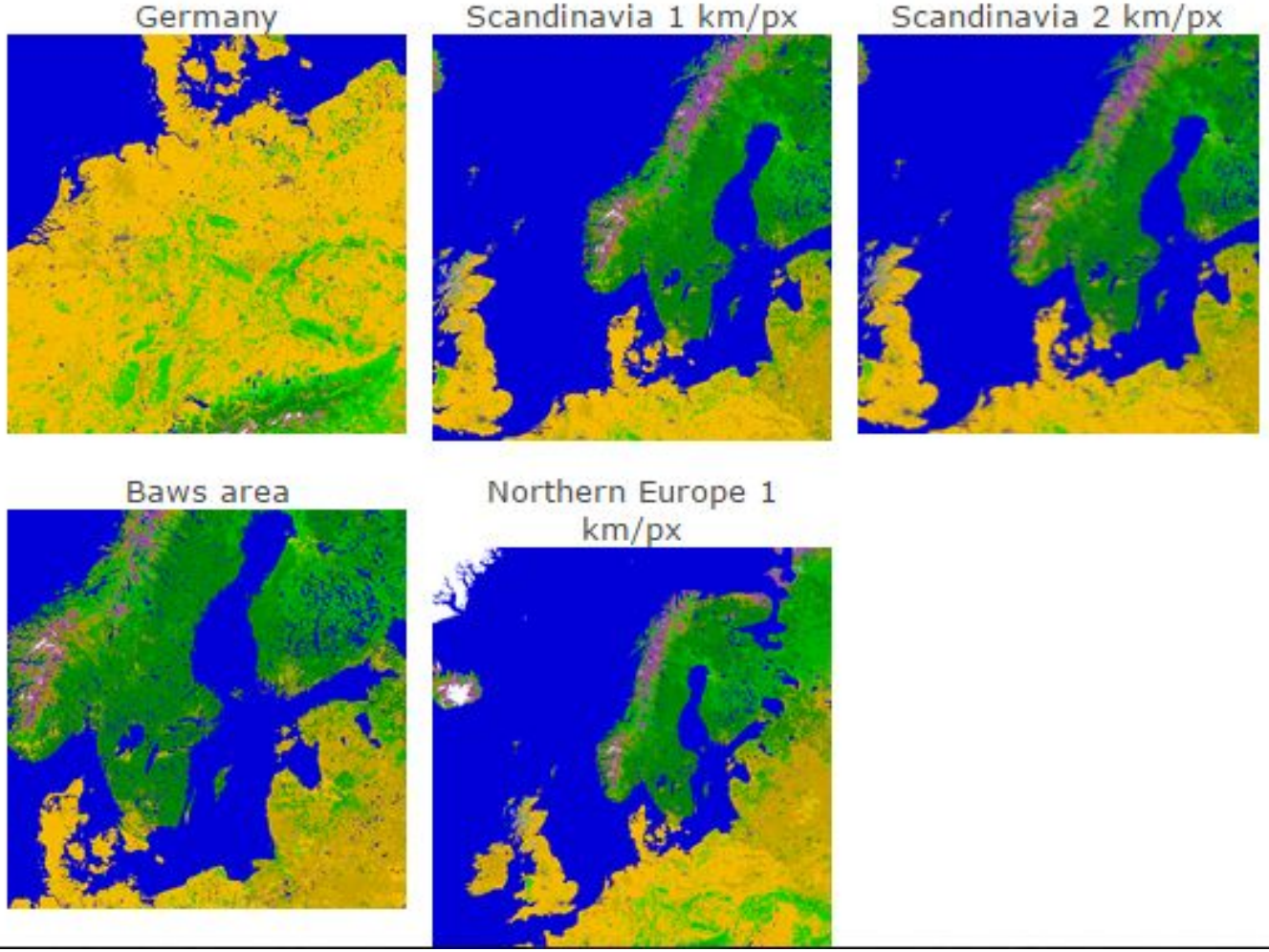
SHMI are responsible for the development and maintenance of the Polar Platform System package (the pps-package) to process the products from data gathered from polar orbiting satellites, Metop, **noaa** and Suomi-NPP. The result, or the products, are an important source of information for example forecasters but also, as input to mesoscale analysis and to specific short range forecasting models.

NWC/PPS

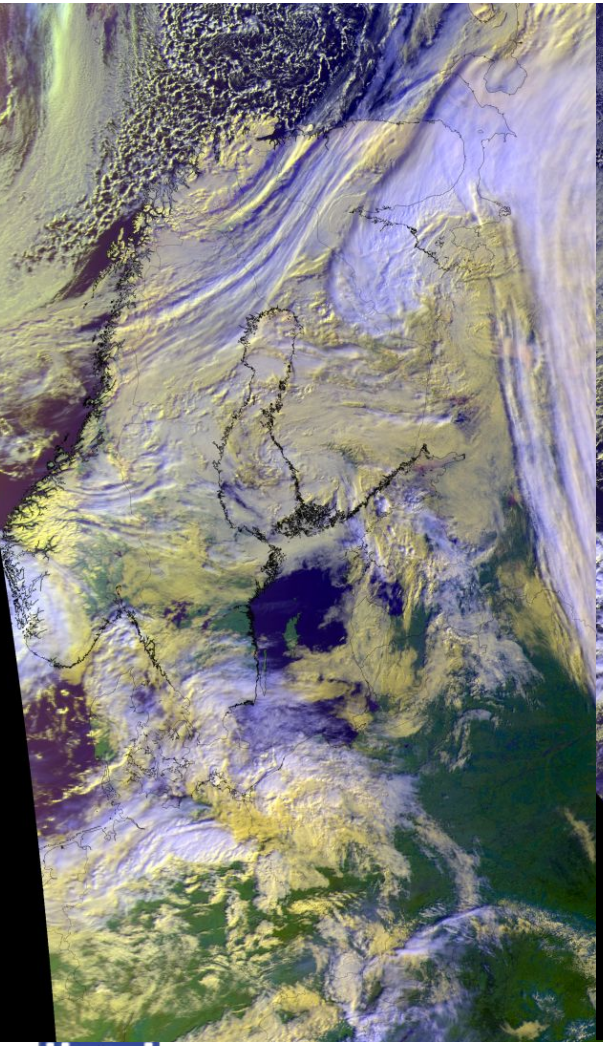

nwcsaf.smhi.se/LocalReception.php?product=ctth&area=baws&time=metop01_20170312_1945_23258
About...
What are we doing?
Cloud Products
Product Demonstration
Real time monitoring
Software
Validation
Documentation
News
Release history
Consortium
EUMETSAT
NWC SAF
Real time product demonstration
All cloud products of the NWCSAF/PPS are generated operationally in real time on data from the direct readout station in Norrköping. Since spring 2016 also data from the EARS-AVHRR service received via EUMETCast are being used as a complement to the direct readout data.
Cloud Top Temperature Height
Baws area
metop01_20170312_1945_23258
noaa15_20170310_0649_97891
npp_20170310_0626_27805
noaa18_20170310_0553_60829
noaa19_20170310_0537_41669
noaa15_20170310_0509_97890
npp_20170310_0448_27804
noaa18_20170310_0413_60828
noaa19_20170310_0357_41668
noaa15_20170310_0329_97889
npp_20170310_0309_27803
noaa19_20170310_0216_41667
aqua_20170310_0208_78984
npp_20170310_0129_27802
noaa19_20170310_0038_41666
aqua_20170310_0022_78983
npp_20170309_2348_27801
aqua_20170309_2245_78977
metop01_20170309_2233_23217
npp_20170309_2207_27800
metop01_20170309_2048_23216
< Previous Next>>
Unprocessed
0-500m
500-1000m
1000-1500m
1500-2000m
2000-2500m
2500-3000m
3000-3500m
3500-4000m
4000-4500m
4500-5000m
5000-5500m
5500-6000m
6000-6500m
6500-7000m
7000-7500m
7500-8000m
8000-8500m
8500-9000m
> 9000 m

NWC/PPS

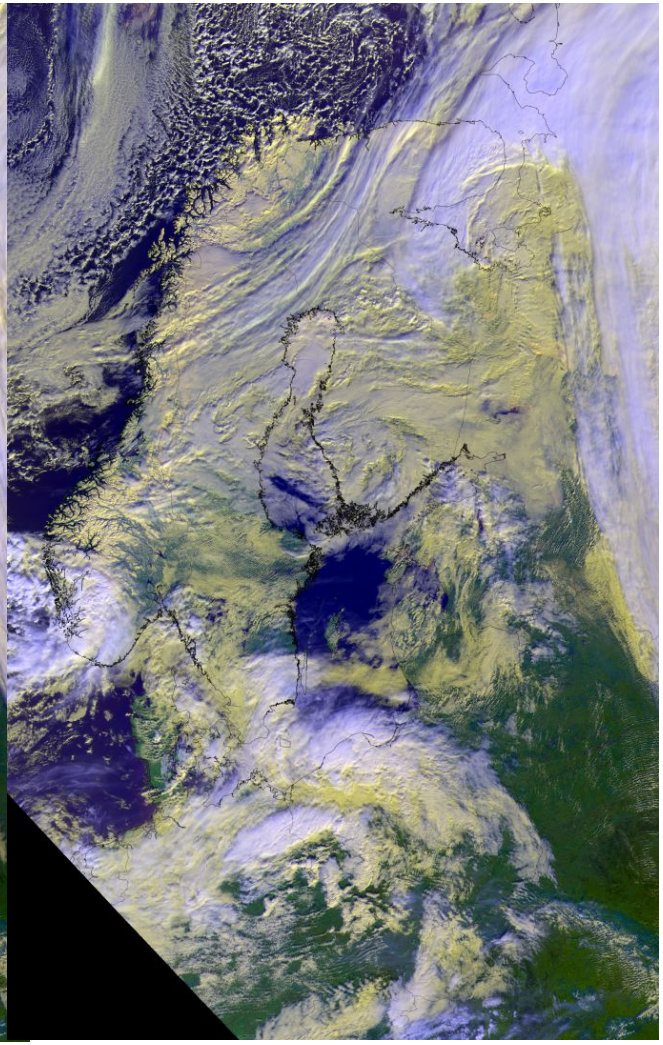
- Online products areas:



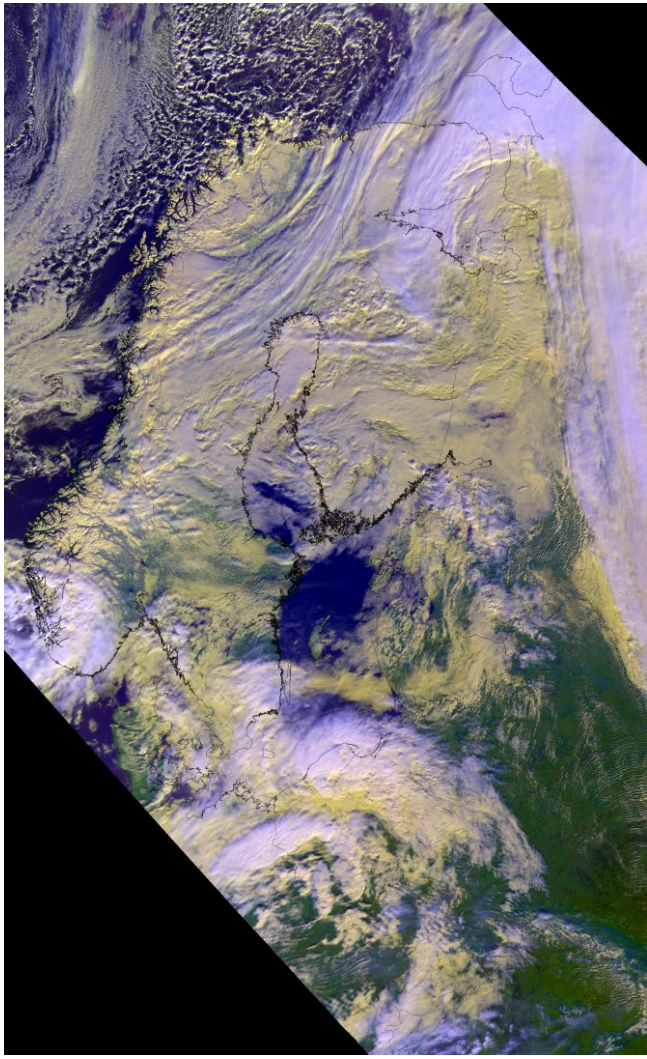
NWC/PPS **Cloud**



8:20 UTC Metop

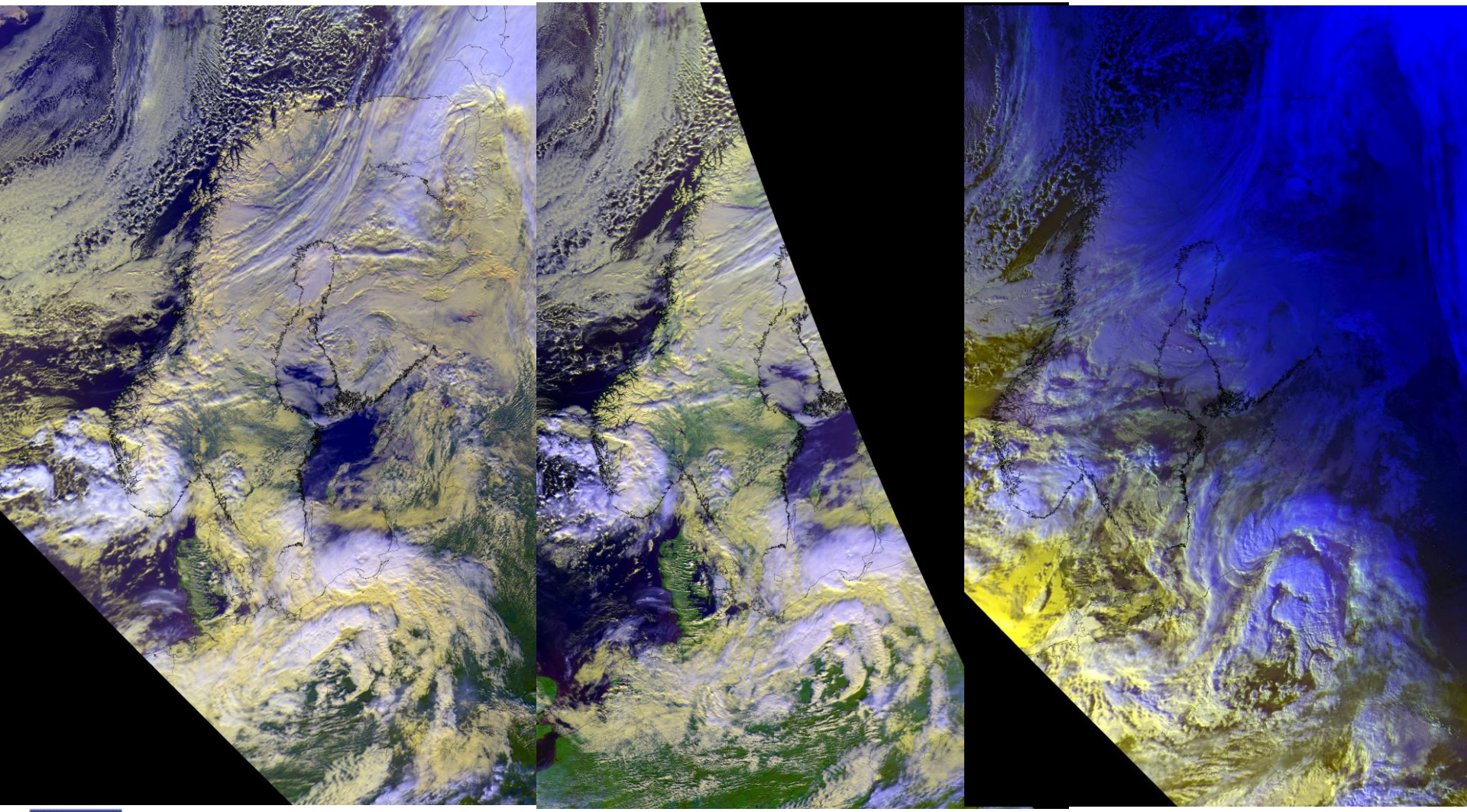


10:32 UTC NPP



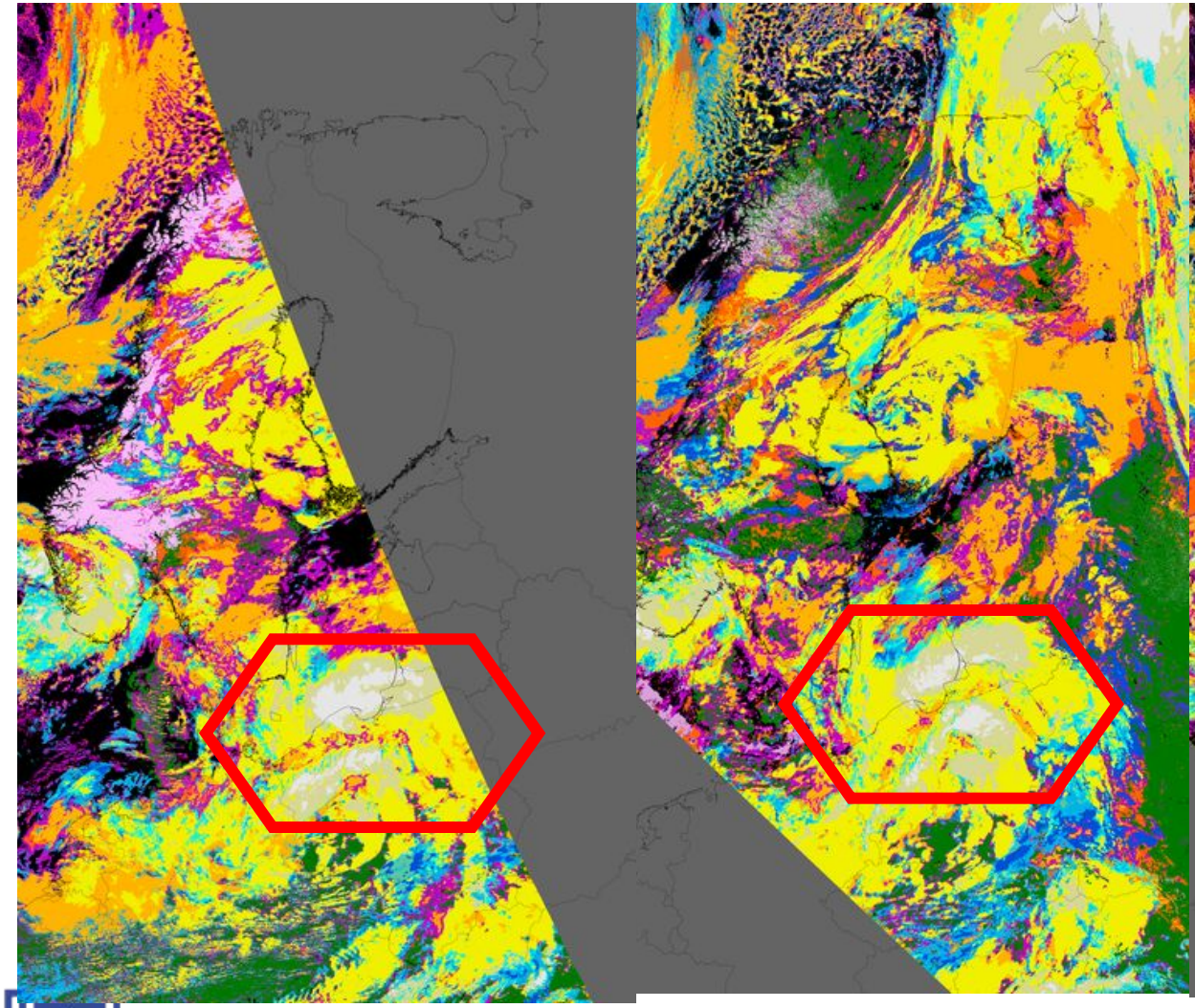
10:48 UTC Aqua

NWC/PPS **Cloud Type**



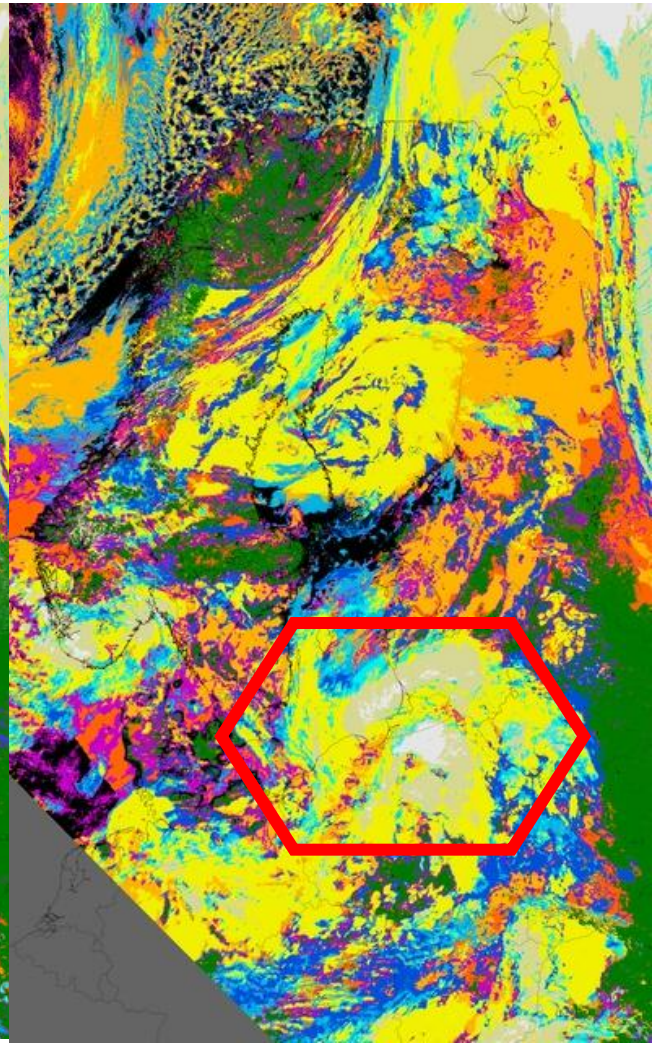
12:07 UTC NOAA 19 12:26 UTC Aqua 15:41 UTC NOAA18

NWC/PPS **Cloud Type**



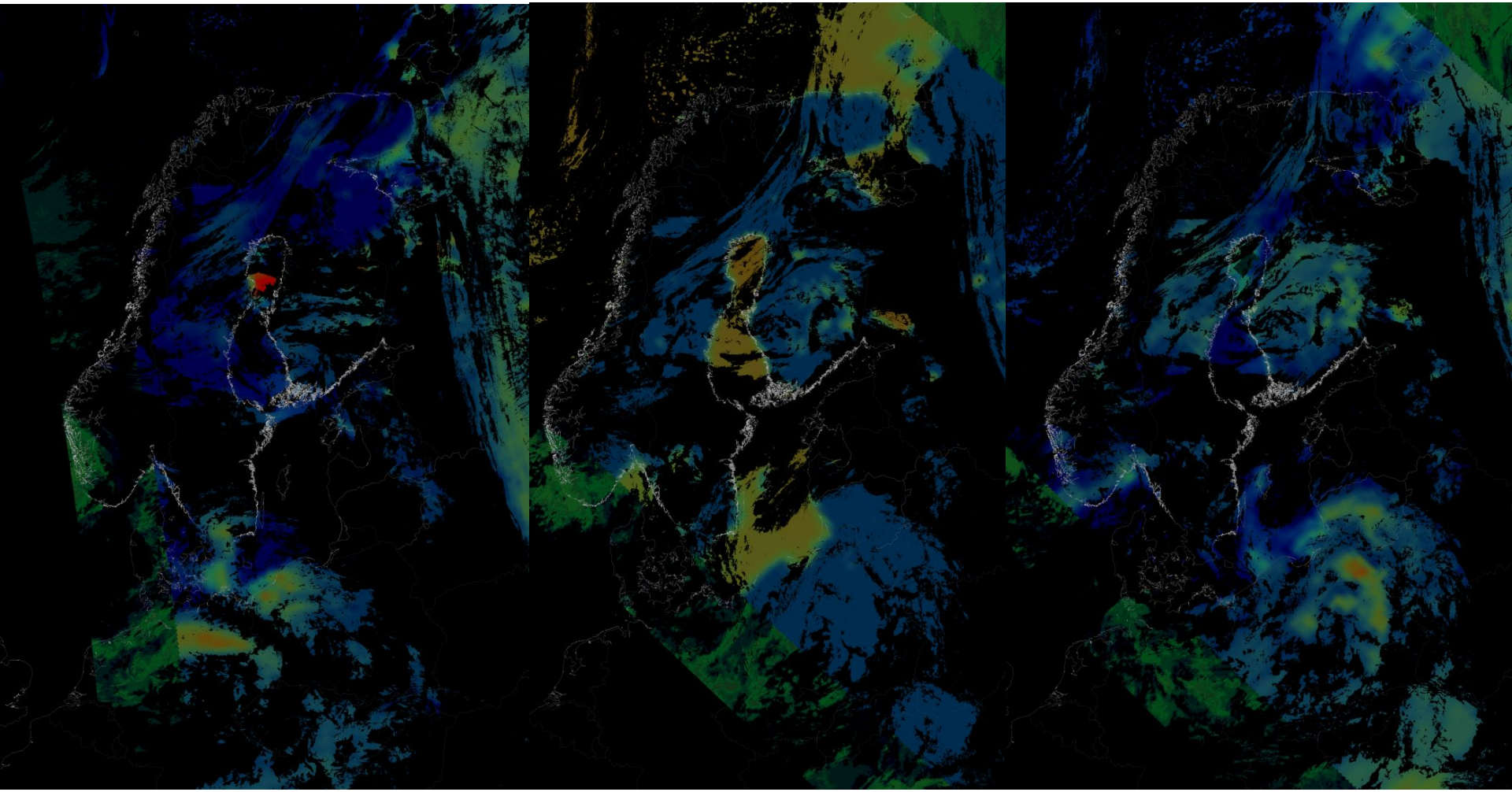
12:26 UTC Aqua

14:59 UTC NOAA15



15:41 UTC NOAA18

NWC/PPS **Precipitating Clouds**



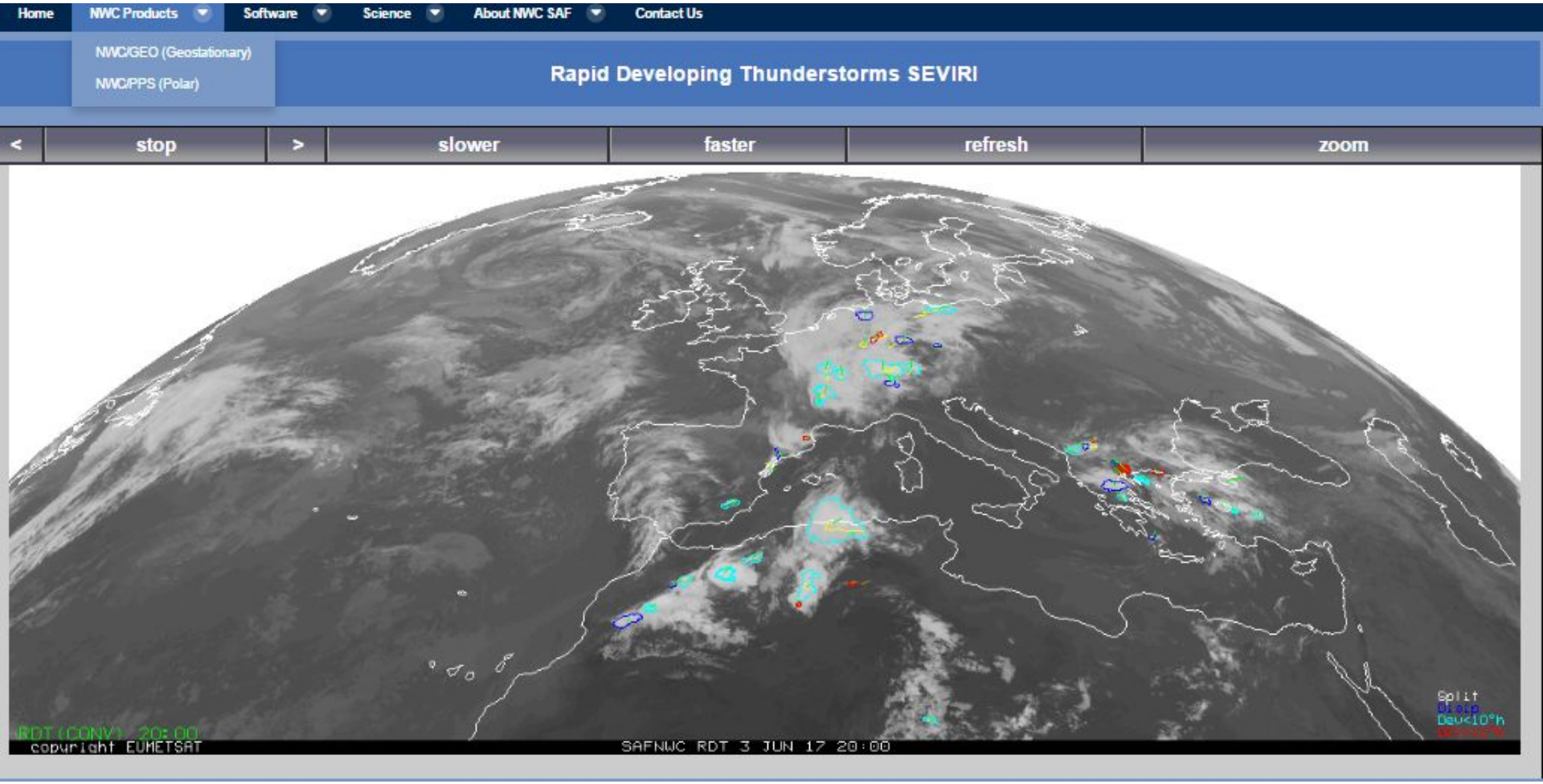
8:20 UTC Metop 14:59 UTC NOAA15 15:41 UTC NOAA18

NWC/GEO products

NWC/GEO - MSG Reference System Outputs

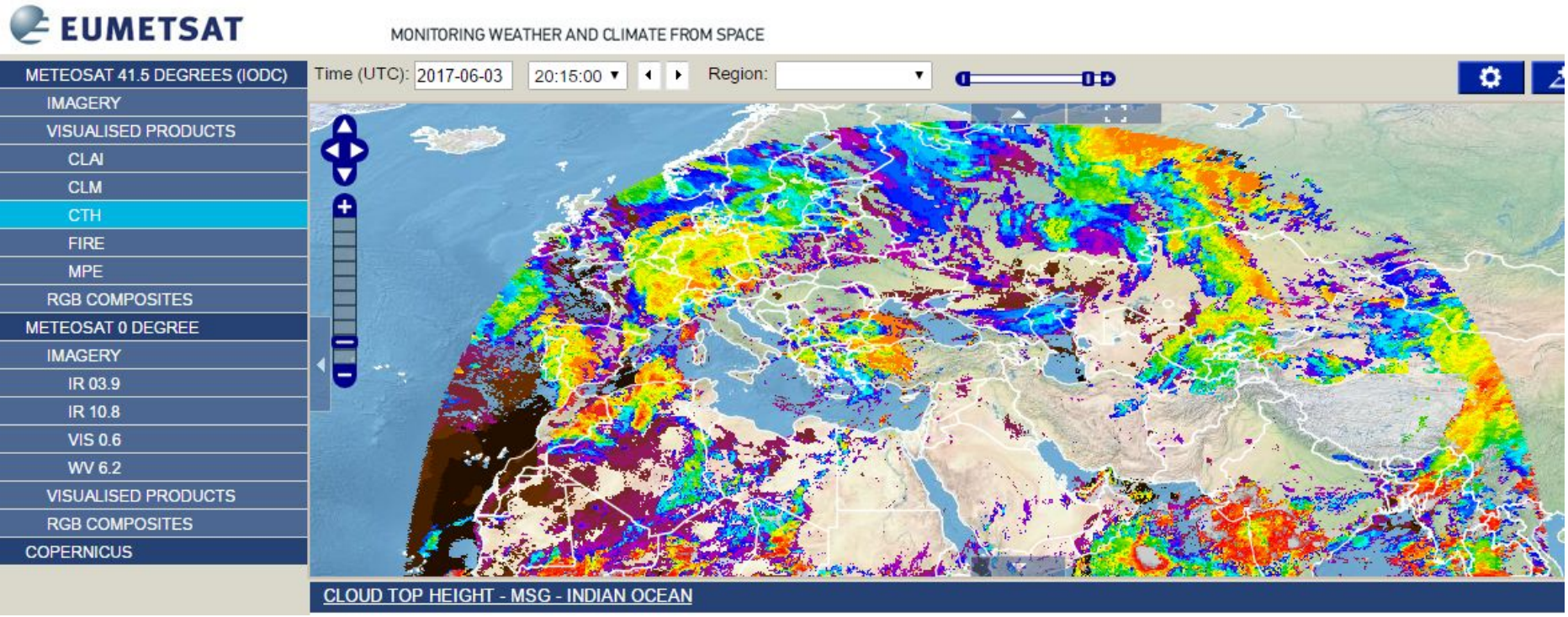
- **Cloud Products:** (CMA) Cloud Mask; (CT) Cloud Type; (CTTH) Cloud Top Temperature and Height
- **Precipitation Products:** (PC) Precipitating Clouds; (CRR) Convection Rainfall Rate; (PPh) Precipitation Products based on Cloud Physical Properties
- **Clear Air Physical Retrieval Products:** (iSHAI) Total Precipitable Water; (iSHAI) Layer Precipitable Water; (iSHAI) Stability Analysis Imagery
- **Winds and Conceptual Models Products:** (HRW) High Resolution Winds; (ASII) Automatic Satellite Image Interpretation; (ASII-NG) Automatic Satellite Image Interpretation-New Generation
- **Convection Products: (**RDT) Rapid Developing Thunderstorms; (CI) Convection Initiation

http://www.nwcsaf.org/

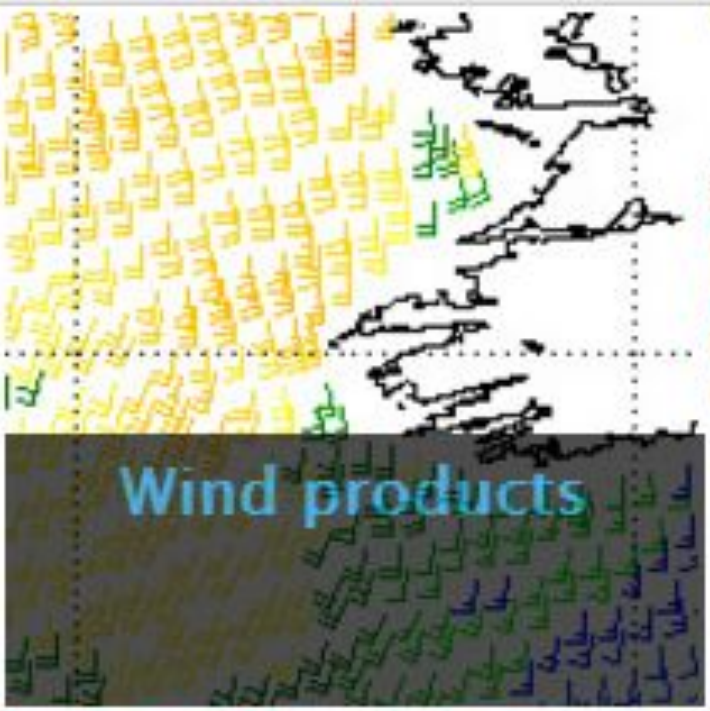


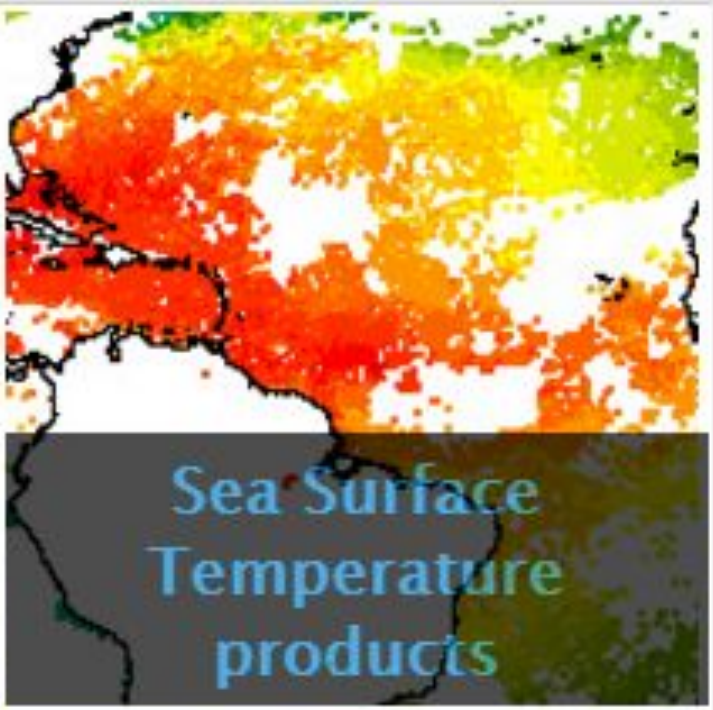
Data for 24 hours in 3 hour step,
for last 3 hours in 15 minutes step

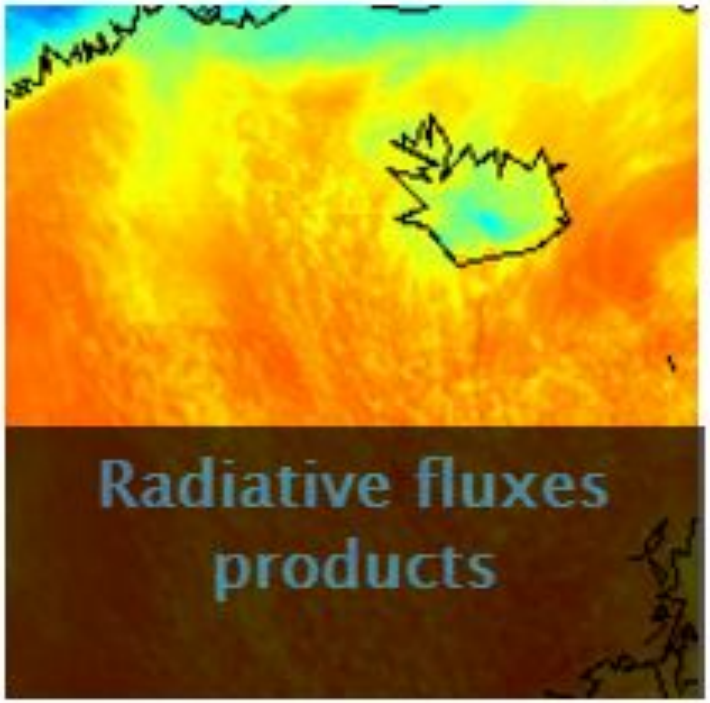
http://eumetview.eumetsat.int/mapviewer/

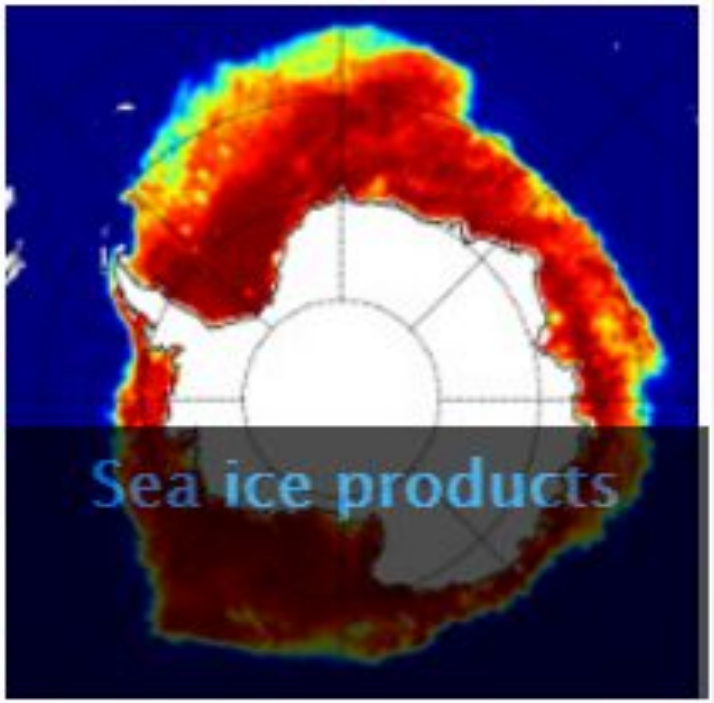


- Data for 7 days in 3 hour step


Wind products


Sea Surface Temperature products


Radiative fluxes products

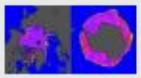

Sea ice products

O S I S A F

Sea ice products http://www.osi-saf.org

Domain: Sea ice

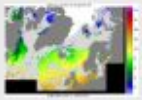
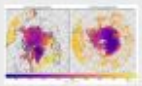
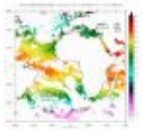
Product type: Near real time product

Thumbnail	Title	Identifier	Status	Satellite input	Level	Frequency	Timeliness	Spatial coverage	Spatial sampling
	Global Sea Ice Concentration (SSMIS)	OSI-401-b	Operational	DMSP/SSMIS	L3	1 per day	5 h	Global	10 km
	Global Sea Ice Edge	OSI-402-c	Operational	DMSP/SSMIS and Metop/ASCAT	L3	1 per day	5 h	global	10 km
	Global Sea Ice Type	OSI-403-c	Operational	DMSP/SSMIS, Metop/ASCAT and GCOM-W/AMSR-2	L3	1 per day	5 h	global	10 km
	Global Sea Ice Emissivity	OSI-404	Operational	DMSP/SSMIS	L3	1 per day	5 h	global	10 km
	Global Low Resolution Sea Ice Drift	OSI-405-c	Operational	DMSP/SSMIS, Metop/ASCAT and GCOM-W/AMSR-2	L3	1 per day	6 h	Global	62.5 km
	Medium Resolution Sea Ice Drift	OSI-407	Operational	Metop/AVHRR	L3	1 per day	6 h	Northern Hemisphere	20 km
	Global Sea Ice Concentration (AMSR-2)	OSI-408	Operational	GCOM-W/AMSR-2	L3	1 per day	5 h	Global	10 km

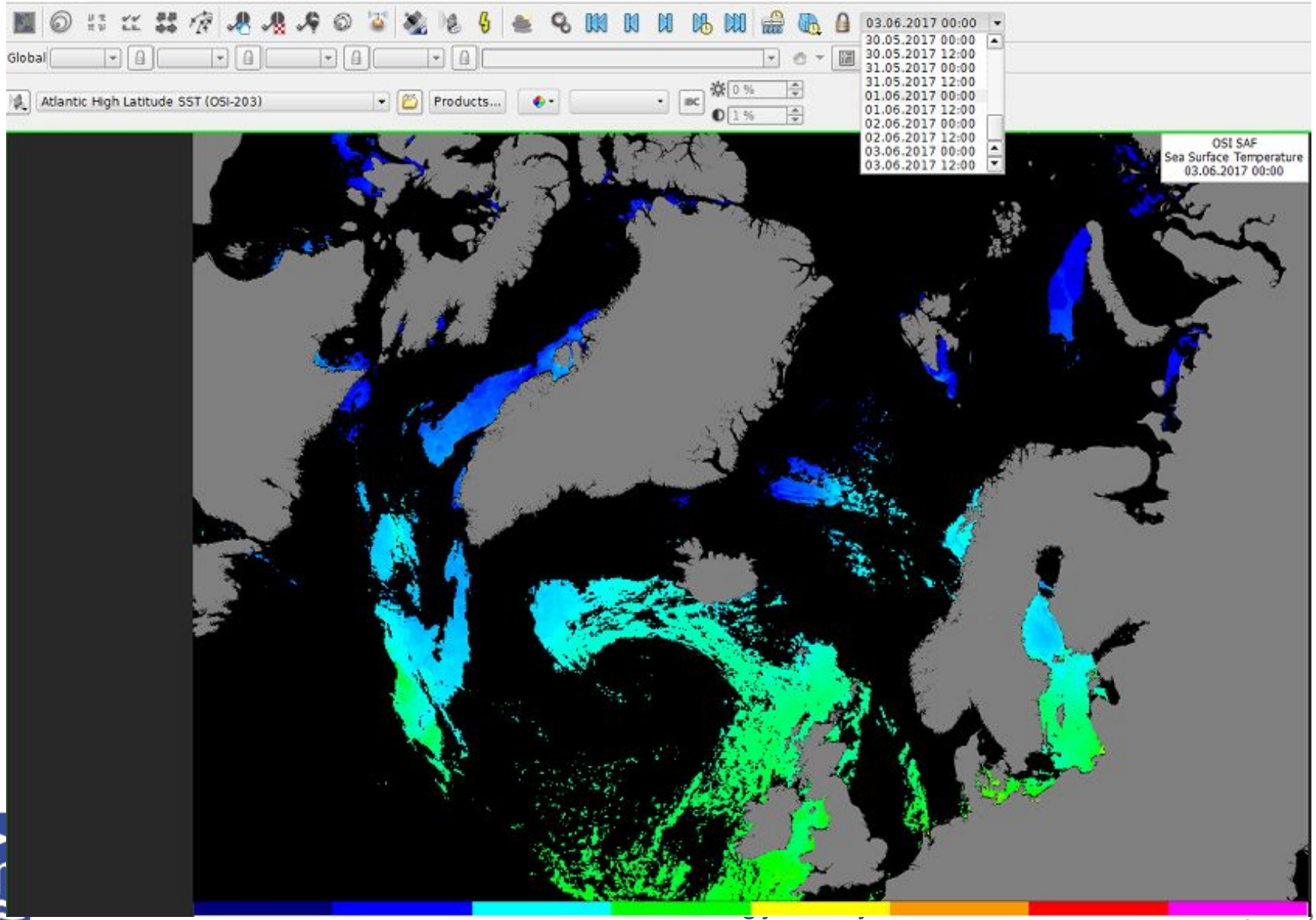
Sea Surface Temperature

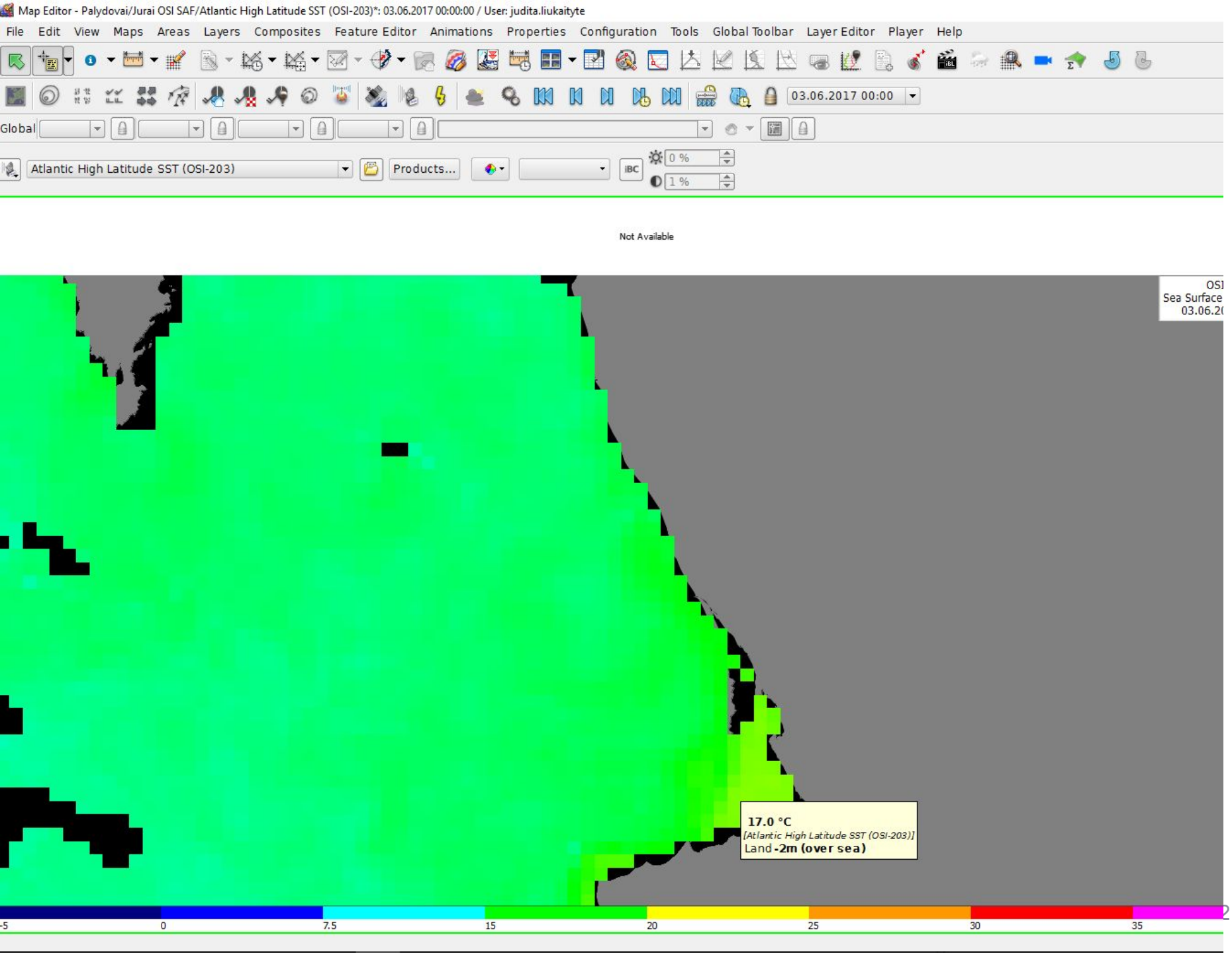
Domain: Sea Surface Temperature

Product type: Near real time product

Thumbnail	Title	Identifier	Status	Satellite input	Level	Frequency	Timeliness	Spatial coverage	Spatial sampling
	Global Metop Sea Surface Temperature	OSI-201-b	Operational	METOP-B/AVHRR	L3P	2 per day	6 h	global	0.05°
	North Atlantic Regional Sea Surface Temperature	OSI-202-b	Operational	METOP-B/AVHRR and NPP/VIIRS	L3P	4 per day	6h	North Atlantic	2 km
	High Latitude Sea and Ice Surface Temperature	OSI-203	Operational	METOP/AVHRR, NOAA/AVHRR	L3	2 per day	3h30	Poleward of 50N	5 km
	Full resolution Metop Sea Surface Temperature metagranules	OSI-204-b	Operational	Metop-B/AVHRR	L2P	480 per day (each 3min)	4h	Global	1km
	High Latitude L2 Sea and Sea Ice Surface Temperature	OSI-205	Operational	METOP/AVHRR	L2		3h	Poleward of 50N/50S	1km
	METEOSAT Sea Surface Temperature	OSI-206	Operational	MSG/SEVIRI	L3C	24 per day	3h	East Atlantic, West Indian: 60N-60S 60W-60E	0.05° Lat-Lon

Sea Surface Temperature

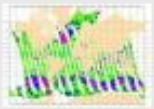
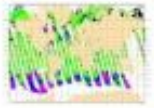
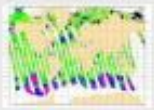
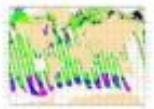



Map Editor - Palydovai/Jurai OSI SAF/Atlantic High Latitude SST (OSI-203)*: 03.06.2017 00:00:00 / User: judita.liukaityte
File Edit View Maps Areas Layers Composites Feature Editor Animations Properties Configuration Tools Global Toolbar Layer Editor Player Help
03.06.2017 00:00
Global
Atlantic High Latitude SST (OSI-203)
Products...
0 %
1 %
Not Available
OSI
Sea Surface
03.06.2(
17.0 °C
[Atlantic High Latitude SST (OSI-203)]
Land -2m (over sea)
-5
0
7.5
15
20
25
30
35

Wind products

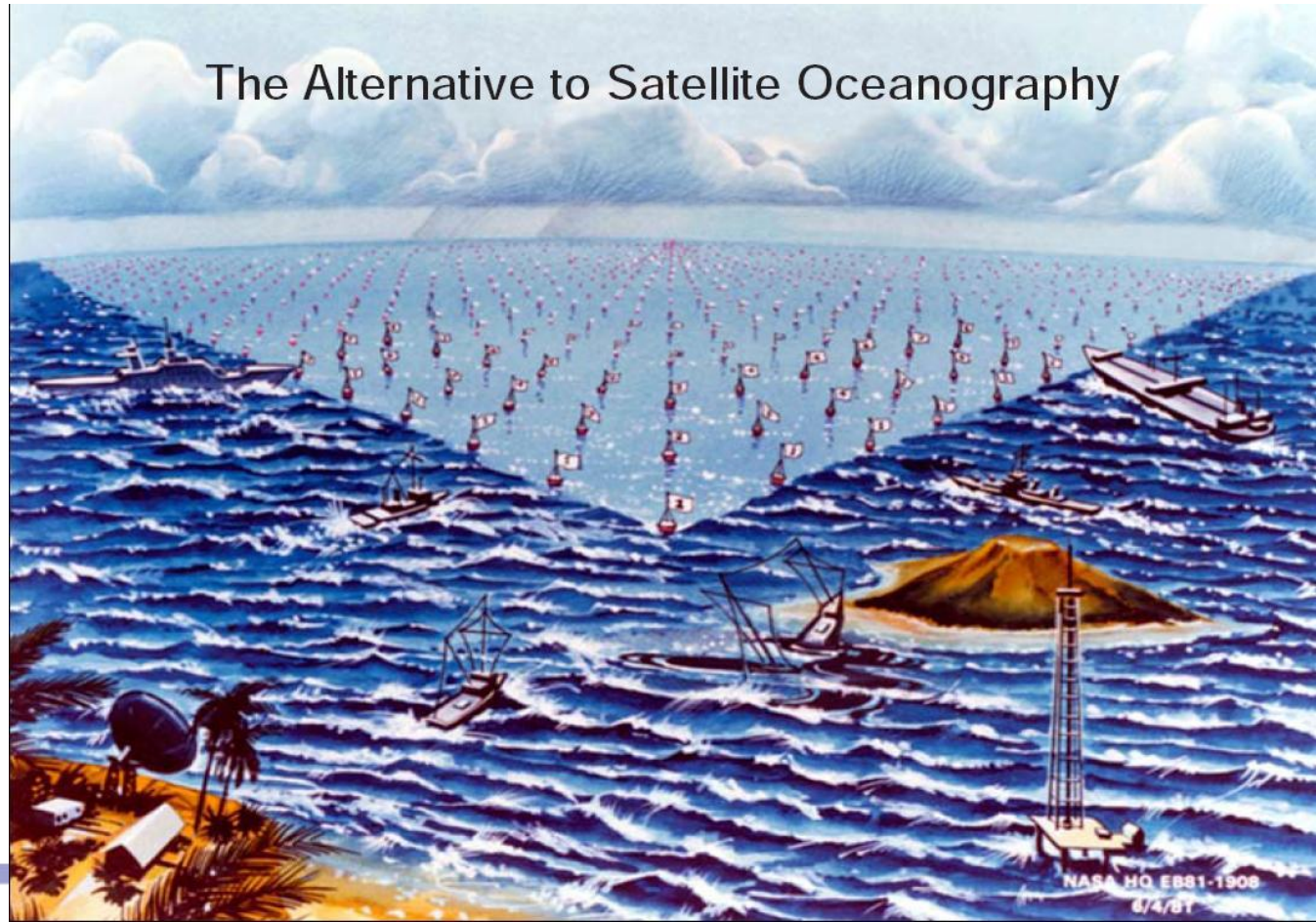
Domain: Wind

Product type: Near real time product

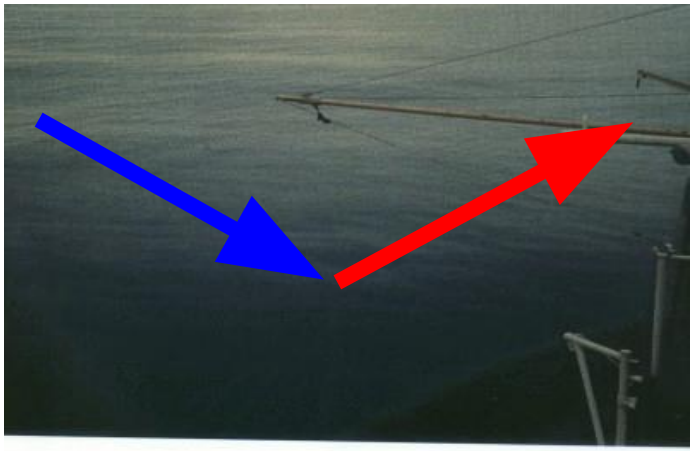
Thumbnail	Title	Identifier	Status	Satellite input	Level	Frequency	Timeliness	Spatial coverage	Spatial sampling
	Metop-A ASCAT 25 km Winds	OSI-102	Operational	Metop-A/ASCAT	L2	Continuous	2 h 45	Global	25 km
	Metop-B ASCAT 25 km Winds	OSI-102-b	Operational	Metop-B/ASCAT	L2	Continuous	2 h 45	Global	25 km
	Metop-A ASCAT coastal Winds	OSI-104	Operational	Metop-A/ASCAT	L2	Continuous	2 h 45	Global	12.5 km
	Metop-B ASCAT coastal Winds	OSI-104-b	Operational	Metop-B/ASCAT	L2	Continuous	2 h 45	Global	12.5 km

What are Scatterometers?

- **Scatterometers are microwave radar instruments specifically designed to measure near surface ocean wind field.**
- **Scatterometer instruments are flown on polar orbiting satellites.**

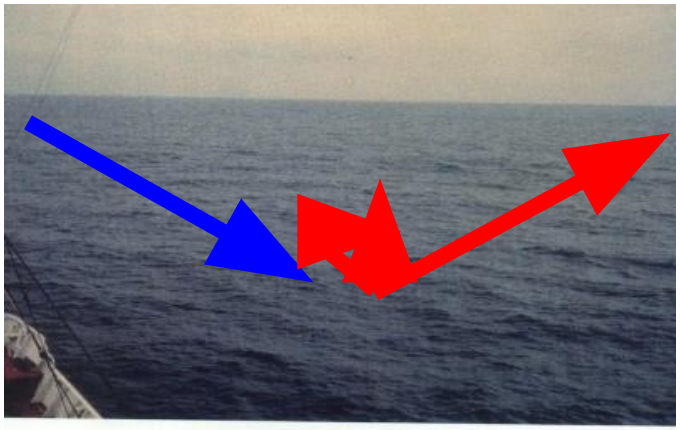


Backscatter modulation by surface roughness



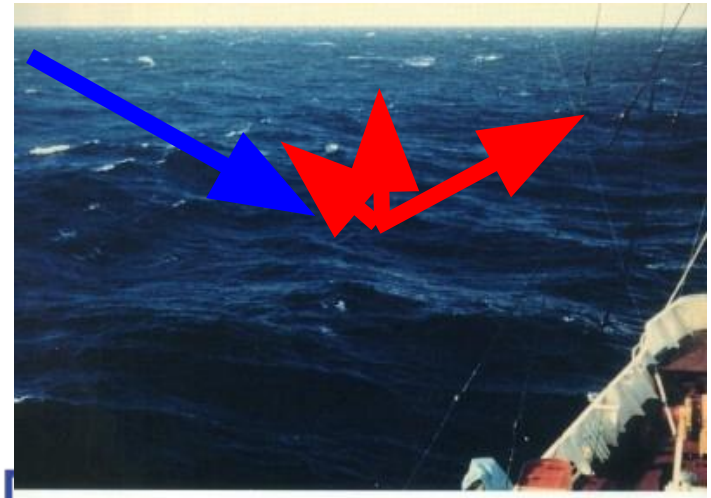
BEAUFORT FORCE 0
WIND SPEED: LESS THAN 1 KNOT

SEA: SEA LIKE A MIRROR



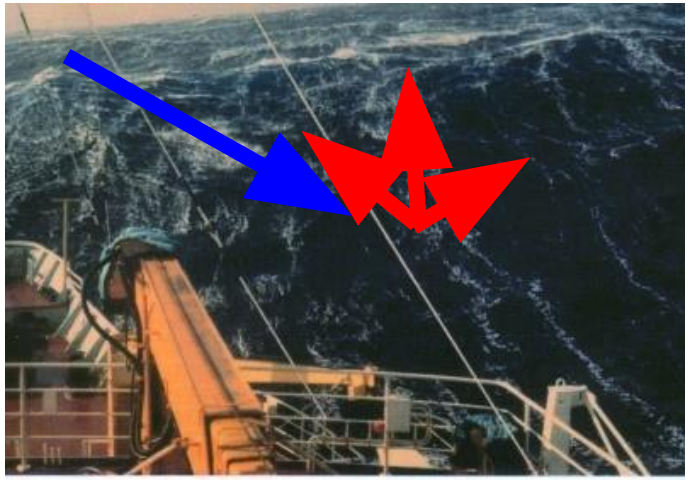
BEAUFORT FORCE 3
WIND SPEED: 7-10 KNOTS

SEA: WAVE HEIGHT .6-1M (2-3FT), LARGE WAVELETS, CRESTS BEGIN TO BREAK, ANY FOAM HAS GLASSY APPEARANCE, SCATTERED WHITECAPS



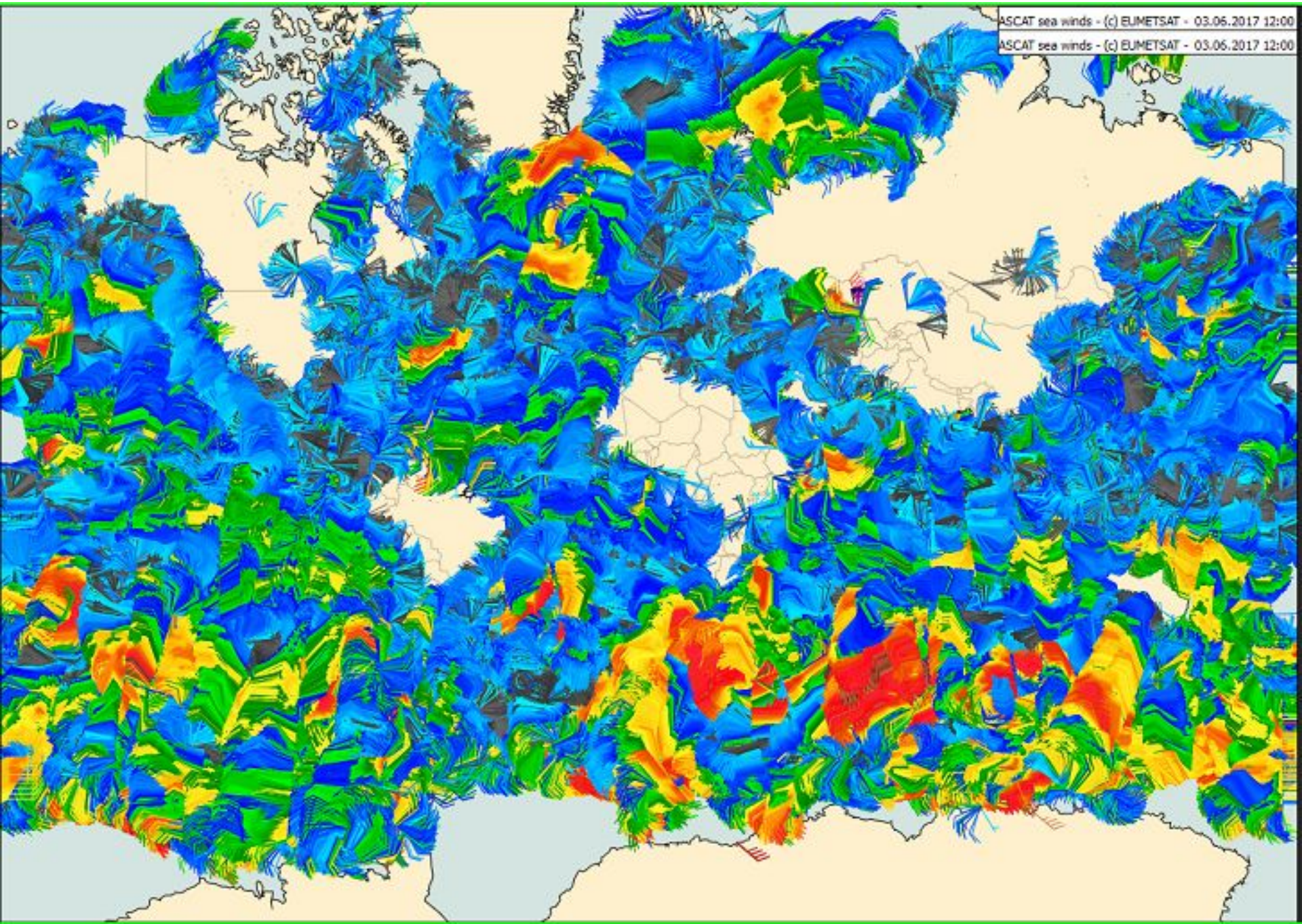
BEAUFORT FORCE 6
WIND SPEED: 22-27 KNOTS

SEA: WAVE HEIGHT 3-4M (9.5-13 FT), LARGER WAVES BEGIN TO FORM, SPRAY IS PRESENT, WHITE FOAM CRESTS ARE EVERYWHERE



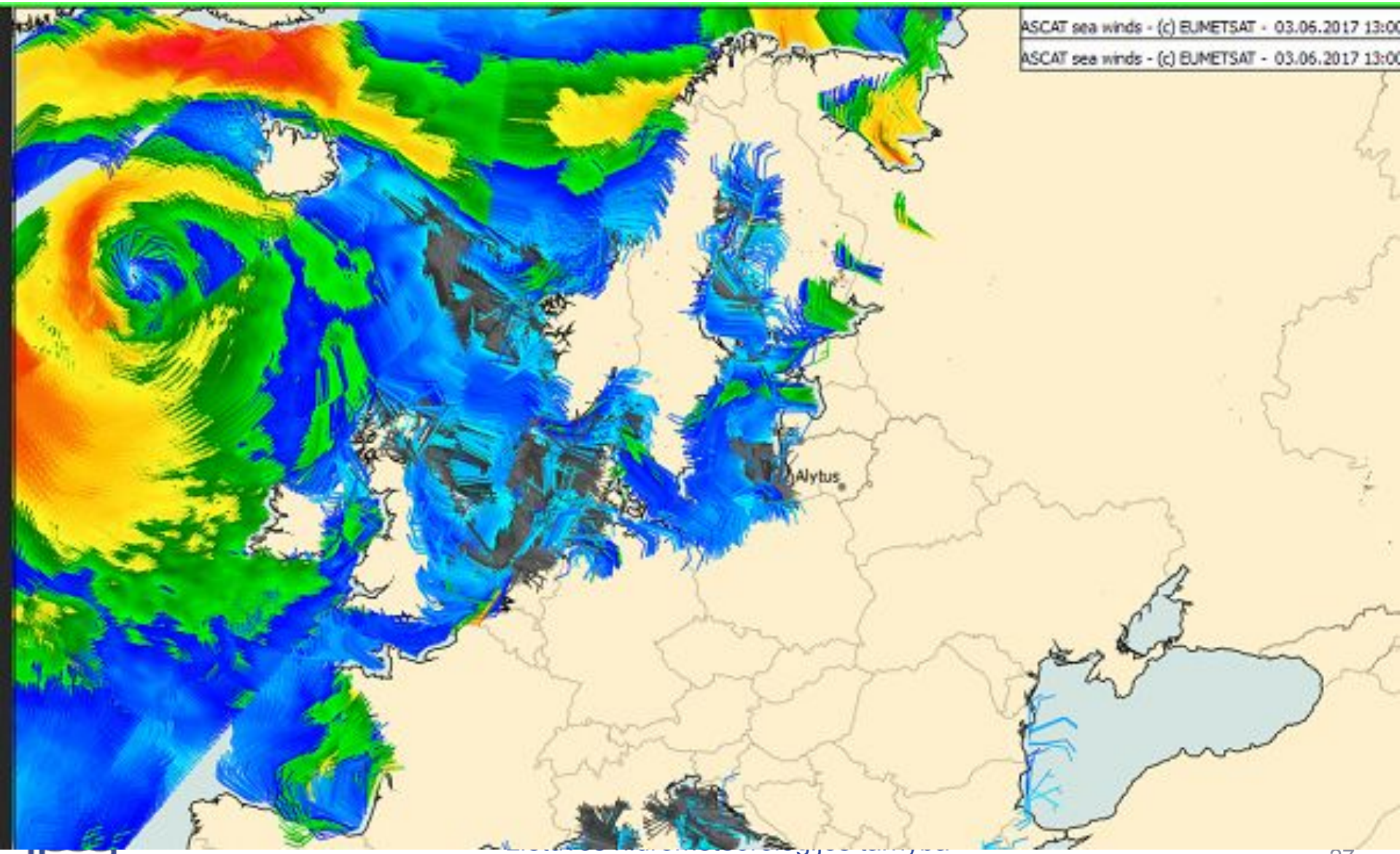
BEAUFORT FORCE 9
WIND SPEED: 41-47 KNOTS

SEA: WAVE HEIGHT 7-10M (23-32FT), HIGH WAVES, DENSE STREAKS OF FOAM ALONG DIRECTION OF THE WIND, WAVE CRESTS BEGIN TO TOPPLE, TUMBLE, AND ROLL OVER. SPRAY MAY AFFECT VISIBILITY.

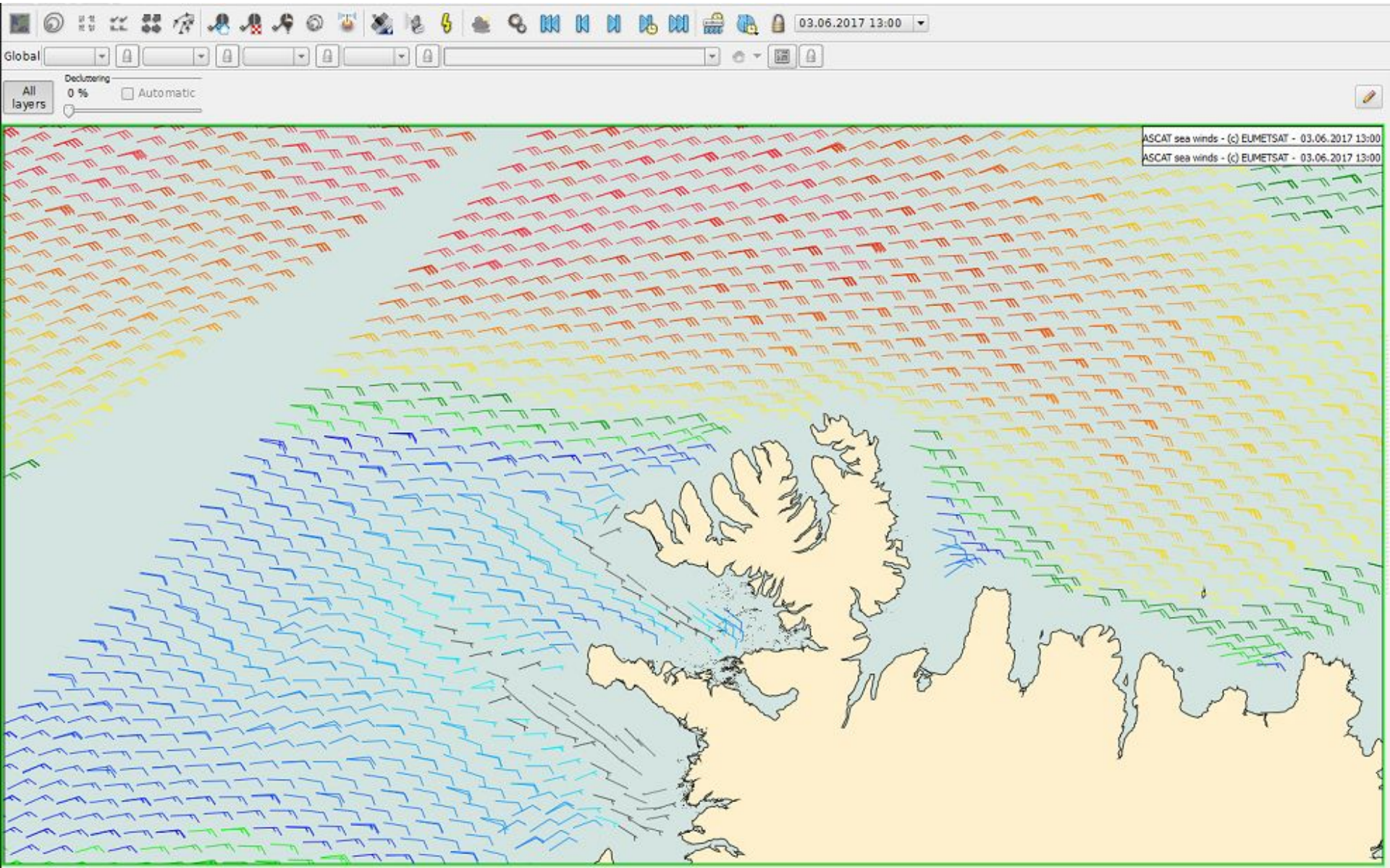


ASCAT sea winds - (c) EUMETSAT - 03.06.2017 12:00

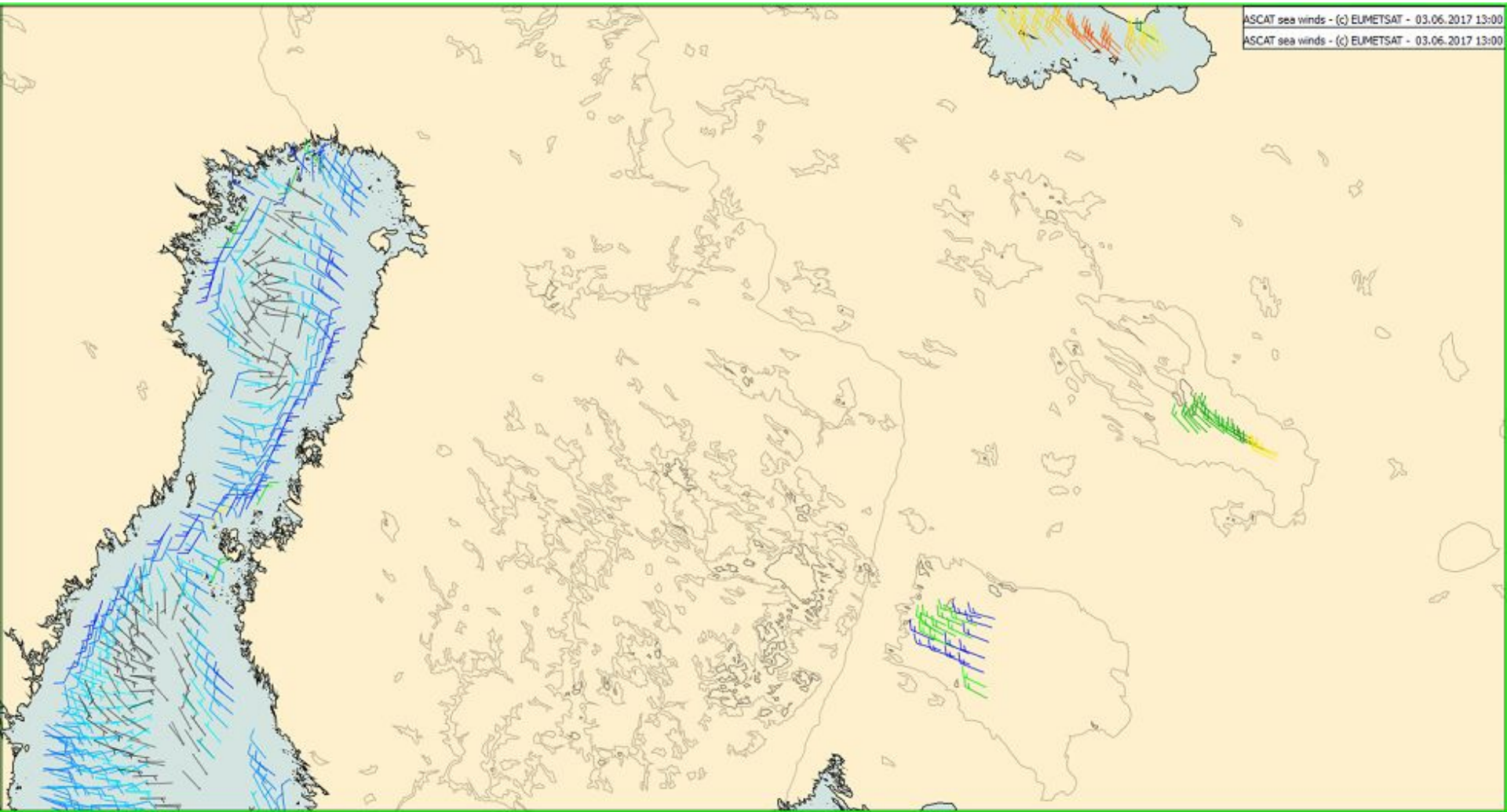
Scatterometers



Scatterometers in 12,5 km resolution

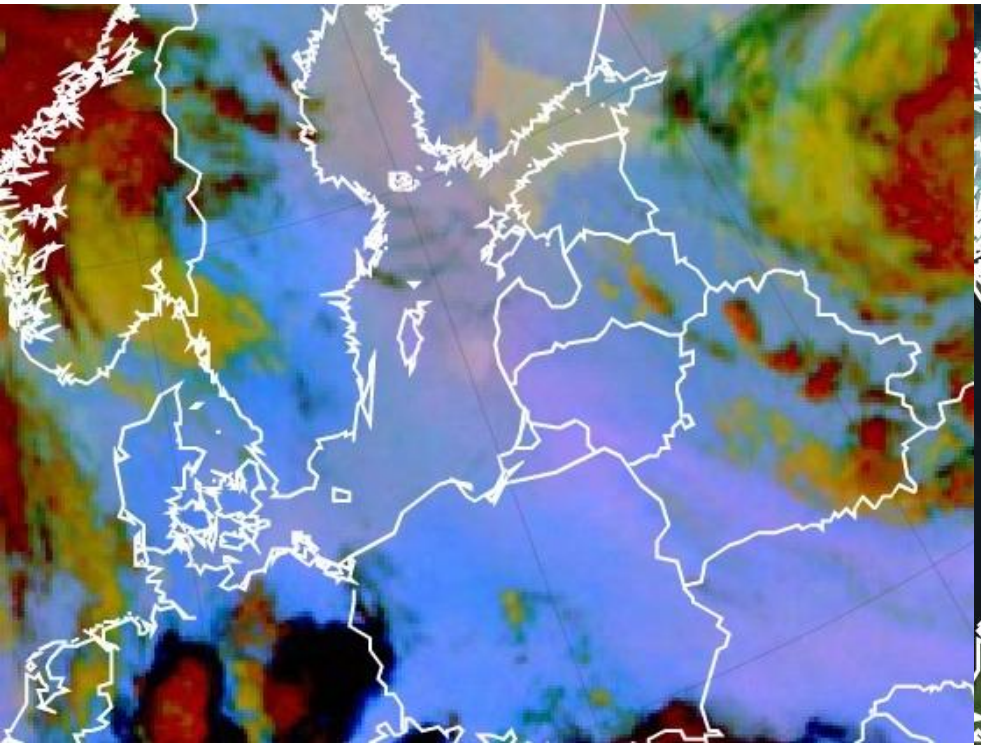


Scatterometers in big lakes

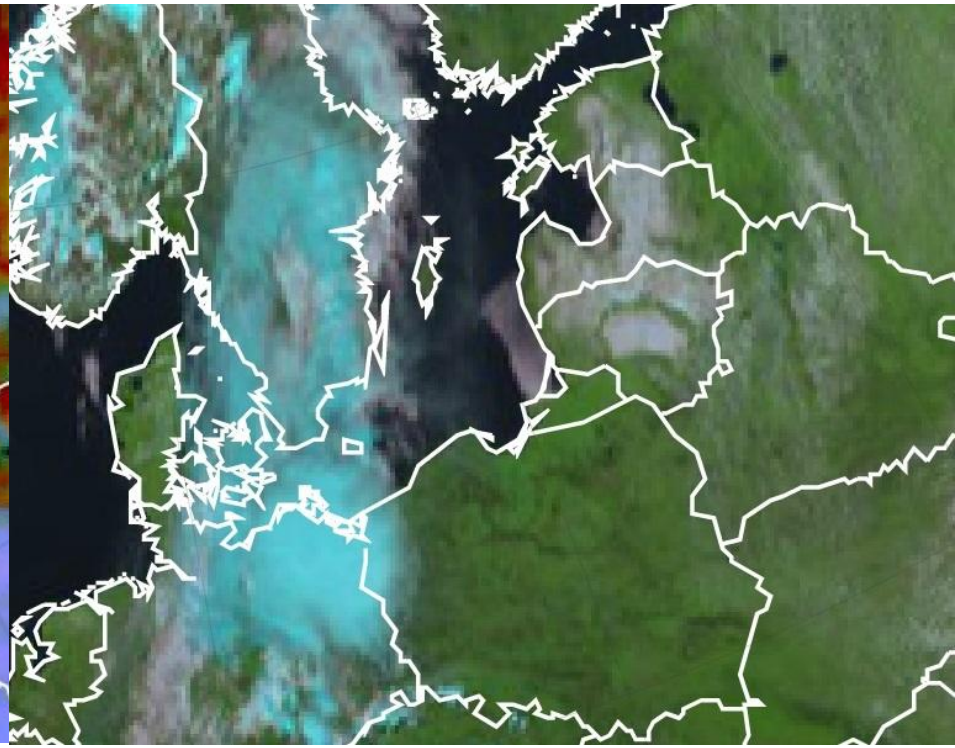


ASCAT sea winds - (c) EUMETSAT - 03.06.2017 13:00

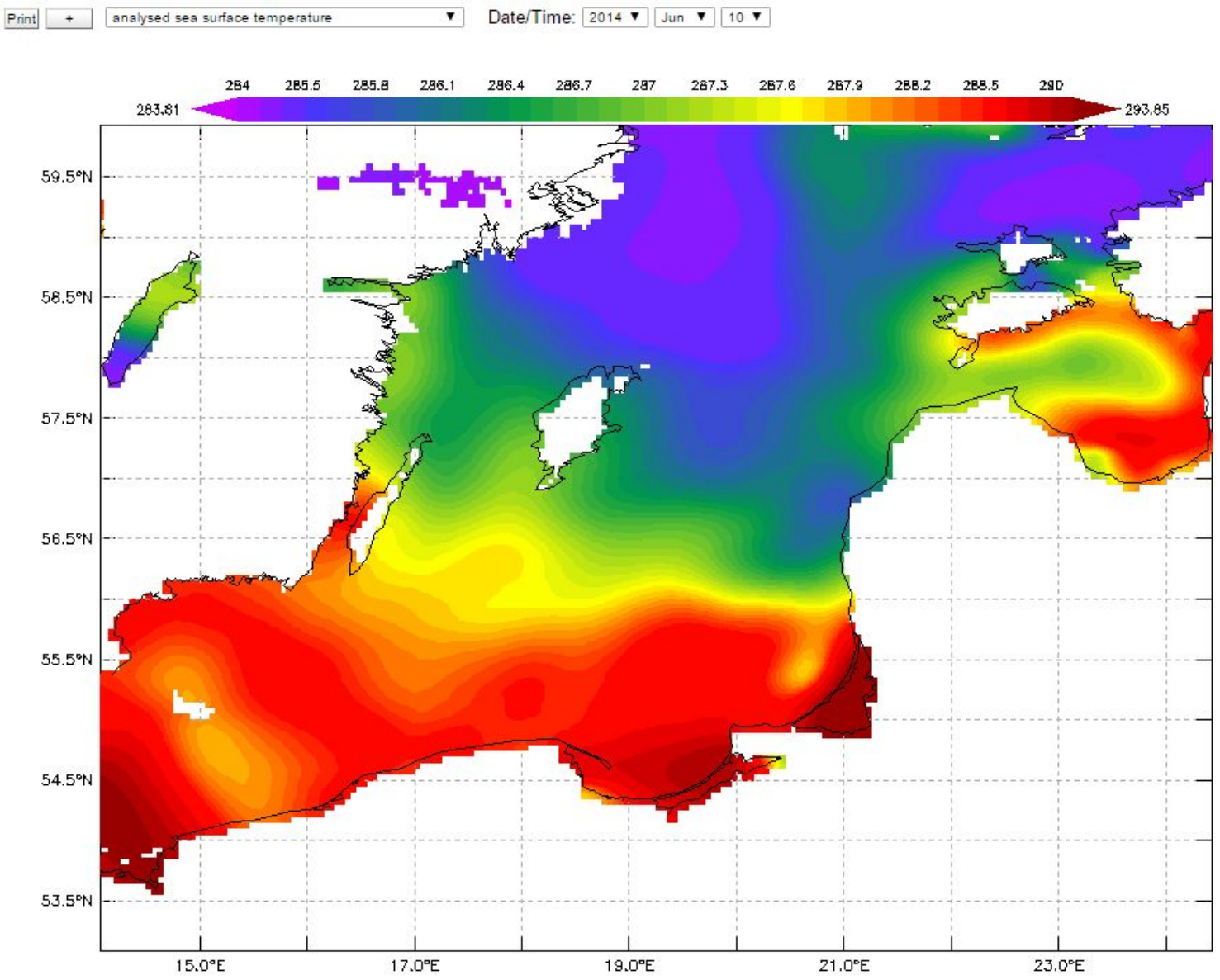
Fog in Baltic sea



2014-06-10 18:00 UTC

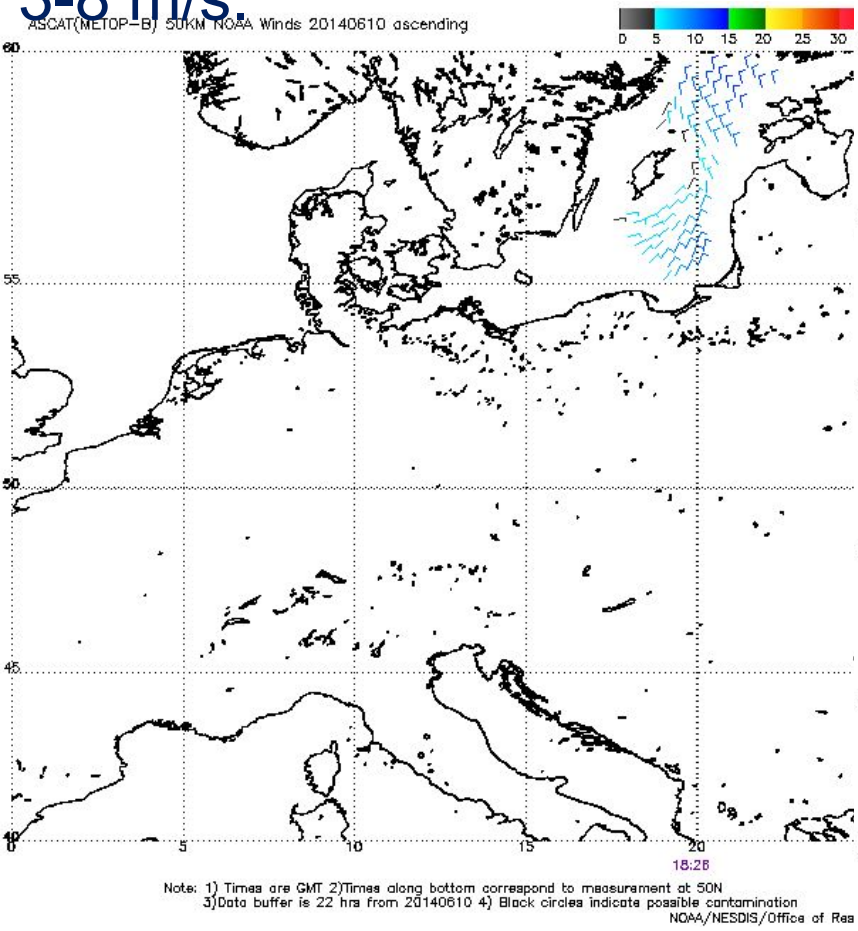


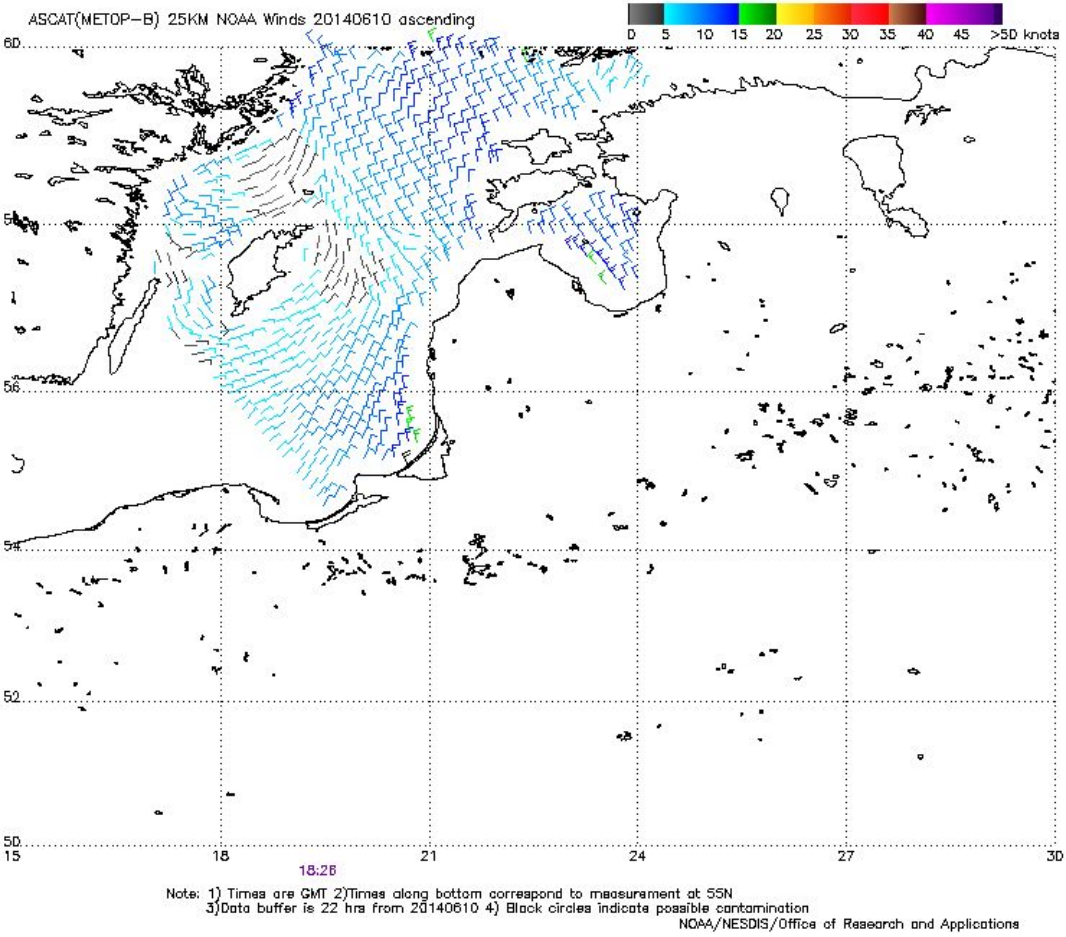
2014-06-11 12:00 UTC



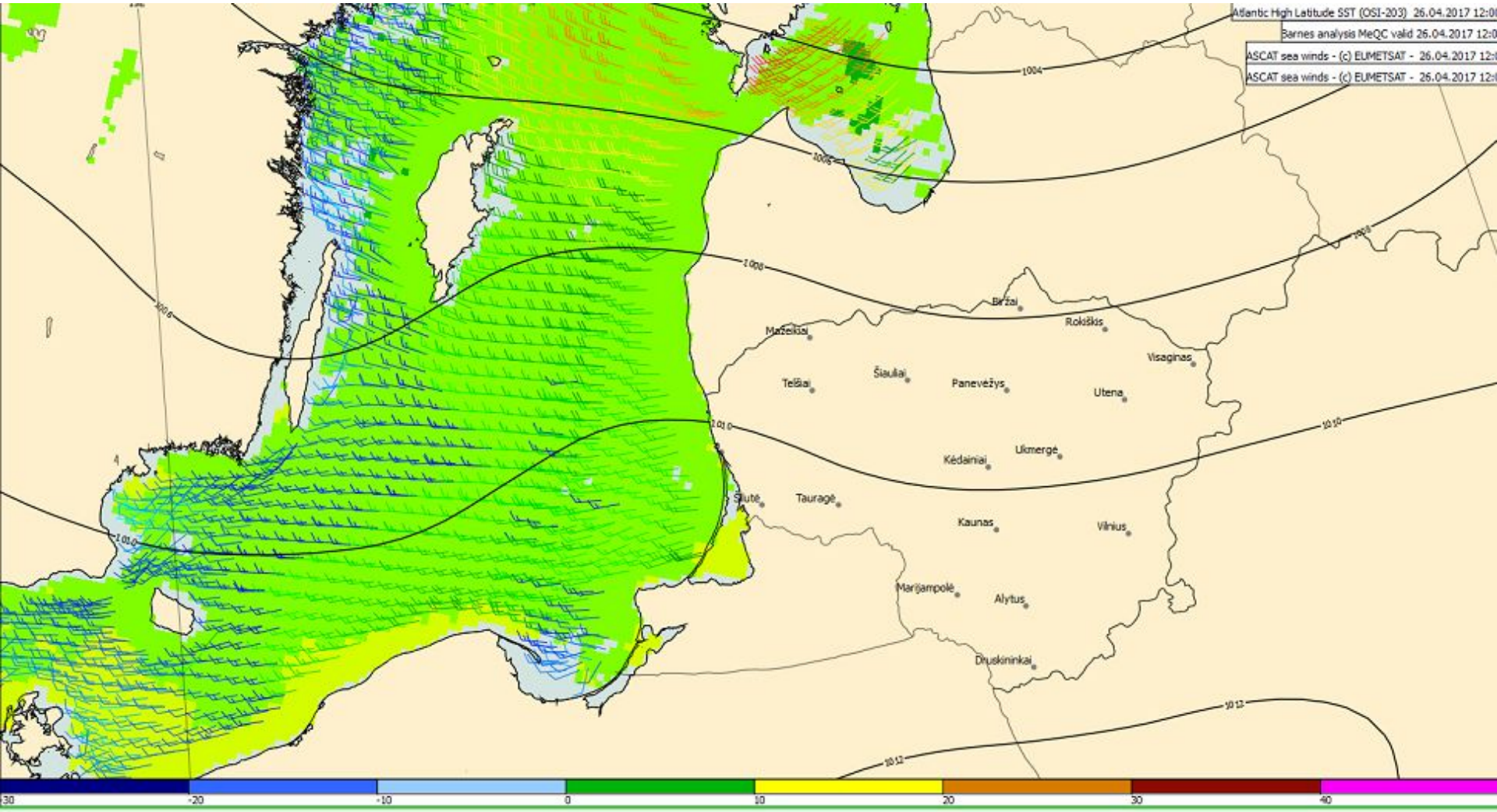
UK Met Office. 2012. GHRSST Level 4 OSTIA Global Foundation Sea Surface Temperature Analysis (GDS version 2). Ver. 2.0. PO.DAAC, CA, USA. Dataset accessed [YYYY-MM-DD] at http://dx.doi.org/10.5067/GHOST-4FK02.

Upwellings usually begin to occur from late April and last till September. Upwelling is often formed in steady anticyclone ridge with the domination of the north, north-east wind, stronger than 3-8 m/s.





OSI SAF products




THANK YOU