

An aerial photograph of a town, likely in France, is shown from a high angle. The town is surrounded by green hills and is partially obscured by a thick layer of white clouds or fog. Overlaid on the bottom half of the image is a white weather map with contour lines and arrows. The contour lines are labeled with values such as 1010, 1015, 1020, 1025, 1030, 1035, and 1040. Arrows indicate wind direction and speed. The background of the slide is a dark blue gradient with a stylized sun in the top left corner.

SUOMI-NPP local data processing and use at MétéoFrance/CMS

P. Brunel and P. Roquet

CSPF/IMAPP Users' Group Meeting, 21-23 May 2013
Madison, Wisconsin



METEO FRANCE
Toujours un temps d'avance

Outline

- 1- METEO-FRANCE CMS SUOMI-NPP Receiving Facilities
- 2- CSPP Operational Implementation
- 3- Products and Applications

MeteoFrance CMS

Located North-West of France CMS is in charge of acquisition and processing of weather satellite data for the national weather service.

About 75 people.

CMS is able to receive:

- GOES-East, GOES-SA and METEOSAT Geos
- NOAA, FY-3, MetOp, EOS and **NPP** Leos.
- Additional capability with EUMETCast DVB streams and internet (MSG, MTSAT, FY-2 etc...)

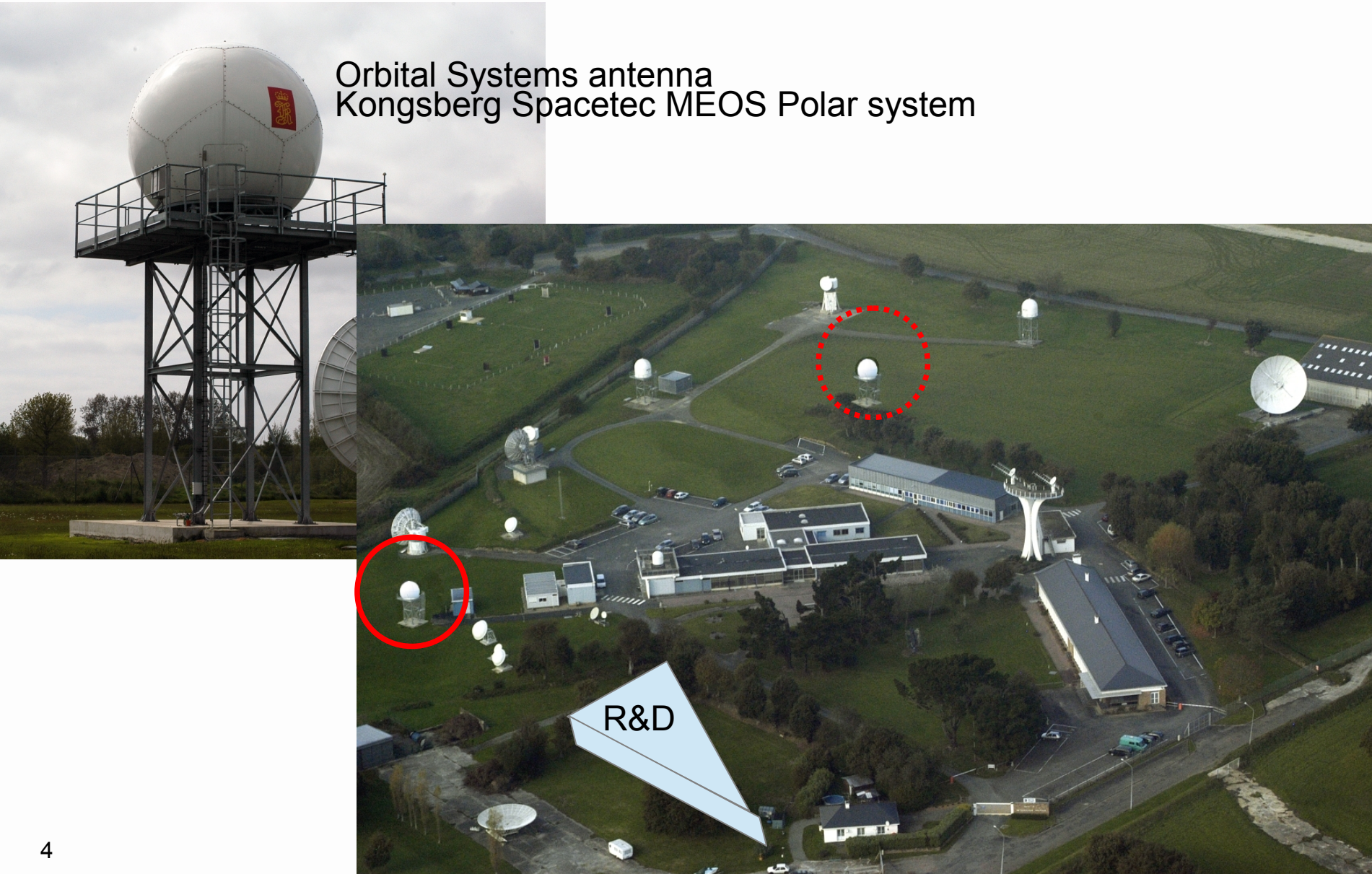
Direct links with NESDIS and EUMETSAT

EUMETSAT EARS network station (ATOVS,AVHRR,IASI,NPP,FY3)

3 EUMETSAT FSDS mission

Antenna Field, NPP

Orbital Systems antenna
Kongsberg Spacetec MEOS Polar system



CSPP Implementation

First trials carried out in Dec 2011 as beta testers.

Current operational versions of CSPP in use for NPP :

- SDR Version 1.3
- VIIRS EDR Version 1.0
- CrIS Hyperspectral Retrieval Software Version 1.0

All scripts unchanged

Ancillary data retrieved through a proxy

All products "ON" . Project to use CREFL

No compression, no aggregation

Computer : HP DL380G7 2 Xeon X5670 2.93GHz

Observed time processing for the longest VIIRS swaths (10/11 SDR granules) is :

	RT-STPS	VIIRS SDR
avg	2'38"	15'30"
min	2'22"	13'23"
max	2'58"	17'50"

ArchiPEL and CSPP

A software system under UNIX aiming at defining a logical and dynamic architecture for interdependent processing applications clustering.

Provides ancillary functionality and enforces standard interface rules.

Dynamic behavior of ArchiPEL is based on a dedicated daemon managing spool I/O.

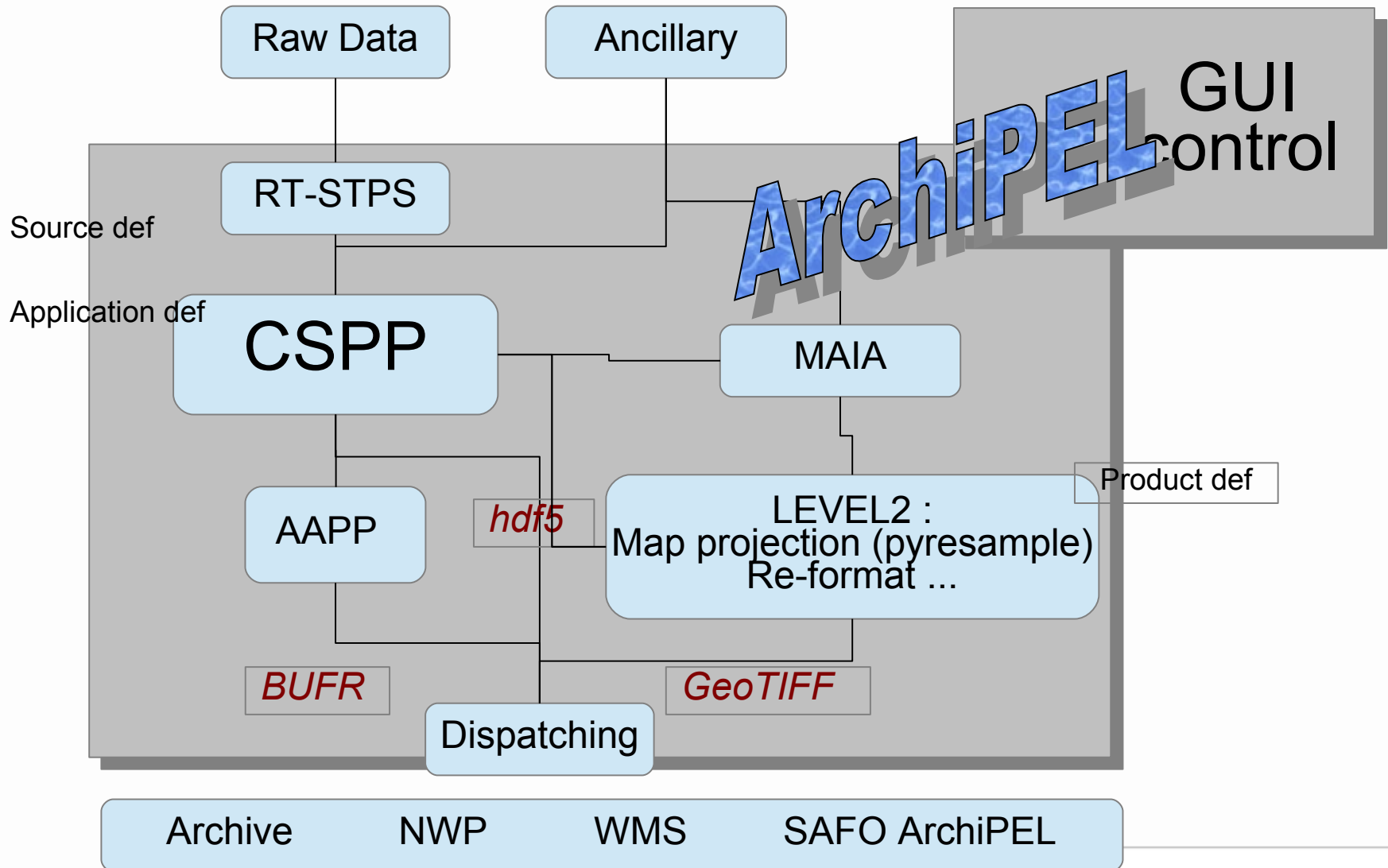
The screenshot displays the ArchiPEL npp interface and a terminal window. The interface window, titled 'ArchiPEL npp (aganton220x.cms.mnpp)', features a menu bar with 'Fichier' and 'Aide', and a toolbar with icons for 'info', 'daemon', 'fct', 'rcp', 'app', and 'trs'. Below the toolbar is a table showing the status of various applications.

app	Spool	Fichier en cours d
RTSTPS	0	
CSPPviirs	2	RVIRS_npp_20130514
CSPPatms	0	
CSPPcris	0	
maia	0	
ATMSCrISbufr	0	
VIIRS	0	
quicklooks	2	SDRviirsM_npp_20130514_123330_08004_interne_0.h5
imgVIIRS	3	SDRviirsI_npp_20130514_123330_08004_interne_0.h5
ImgViirsMaia	1	EndMaiaEvt_npp_20130514_124518_08004_interne_0
imgViirsFire	0	

The terminal window, titled '/npp/fct/log/app/CSPPviirs <@aganton220x.cms.meteo.fr>', shows a log of operations. The log includes the following entries:

```
target : /npp/trs/filesserverCMS/SPPOOL/GMDDO_npp_20130514_124518_08004_CSPPviirs_0.h5
exit du ln : 0
> 2013/05/14 13:07:47 aganton220x.cms.meteo.fr 29817 A_trs_input INFO : Fin input trs
> 2013/05/14 13:07:47 aganton220x.cms.meteo.fr 10247 app_CSPPviirs INFO : transfert GMTCD_npp_d20130514_t1245188_e1246430_b0000
1_c20130514130706594658_cspp_dev_h5 vers safov
> 2013/05/14 13:07:47 aganton220x.cms.meteo.fr 10247 app_CSPPviirs INFO : file: GMTCD_npp_d20130514_t1245188_e1246430_b00001_c2
0130514130706594658_cspp_dev_h5 heure=124518
> 2013/05/14 13:07:47 aganton220x.cms.meteo.fr 10247 app_CSPPviirs INFO : prdid=GMTCD
-P GMTCD -s npp -d 20130514 -h 124518 -n 08004 GMTCD_npp_d20130514_t1245188_e1246430_b00001_c20130514130706594658_cspp_dev_h5
> 2013/05/14 13:07:47 aganton220x.cms.meteo.fr 29991 A_trs_input INFO : Debut input trs from CSPPviirs service app
> 2013/05/14 13:07:47 aganton220x.cms.meteo.fr 29991 A_trs_input INFO : list trs : [filesserverCMS]
> 2013/05/14 13:07:47 aganton220x.cms.meteo.fr 29991 A_trs_input INFO : optstd : [-s npp -d 20130514 -h 124518 -n 08004]
> 2013/05/14 13:07:47 aganton220x.cms.meteo.fr 29991 A_trs_input INFO : Appel fct adm get_prd_sch pour GMTCD sur filesserverCMS
> 2013/05/14 13:07:47 aganton220x.cms.meteo.fr 29991 A_trs_input INFO : prd_sch : [Y]
> 2013/05/14 13:07:47 aganton220x.cms.meteo.fr 29991 A_trs_input INFO : Appel fct adm get_prd_trs pour GMTCD sur filesserverCMS
> 2013/05/14 13:07:47 aganton220x.cms.meteo.fr 29991 A_trs_input INFO : prd_trs : [N]
> 2013/05/14 13:07:47 aganton220x.cms.meteo.fr 29991 A_trs_input INFO : envoi sur spool filesserverCMS
ok
source : GMTCD_npp_d20130514_t1245188_e1246430_b00001_c20130514130706594658_cspp_dev_h5
target : /npp/trs/filesserverCMS/SPPOOL/GMDDO_npp_20130514_124518_08004_CSPPviirs_0.h5
exit du ln : 0
> 2013/05/14 13:07:47 aganton220x.cms.meteo.fr 29991 A_trs_input INFO : Fin input trs
> 2013/05/14 13:07:49 aganton220x.cms.meteo.fr 10247 app_CSPPviirs INFO : >>>> running edr viirs
```


ArchiPEL and CSPP



MAIA AAPP VIIRS Full M Resolution Cloud Mask

Developed within the framework of the EUMETSAT OSI and NWP SAFs

Maia version 4 for VIIRS

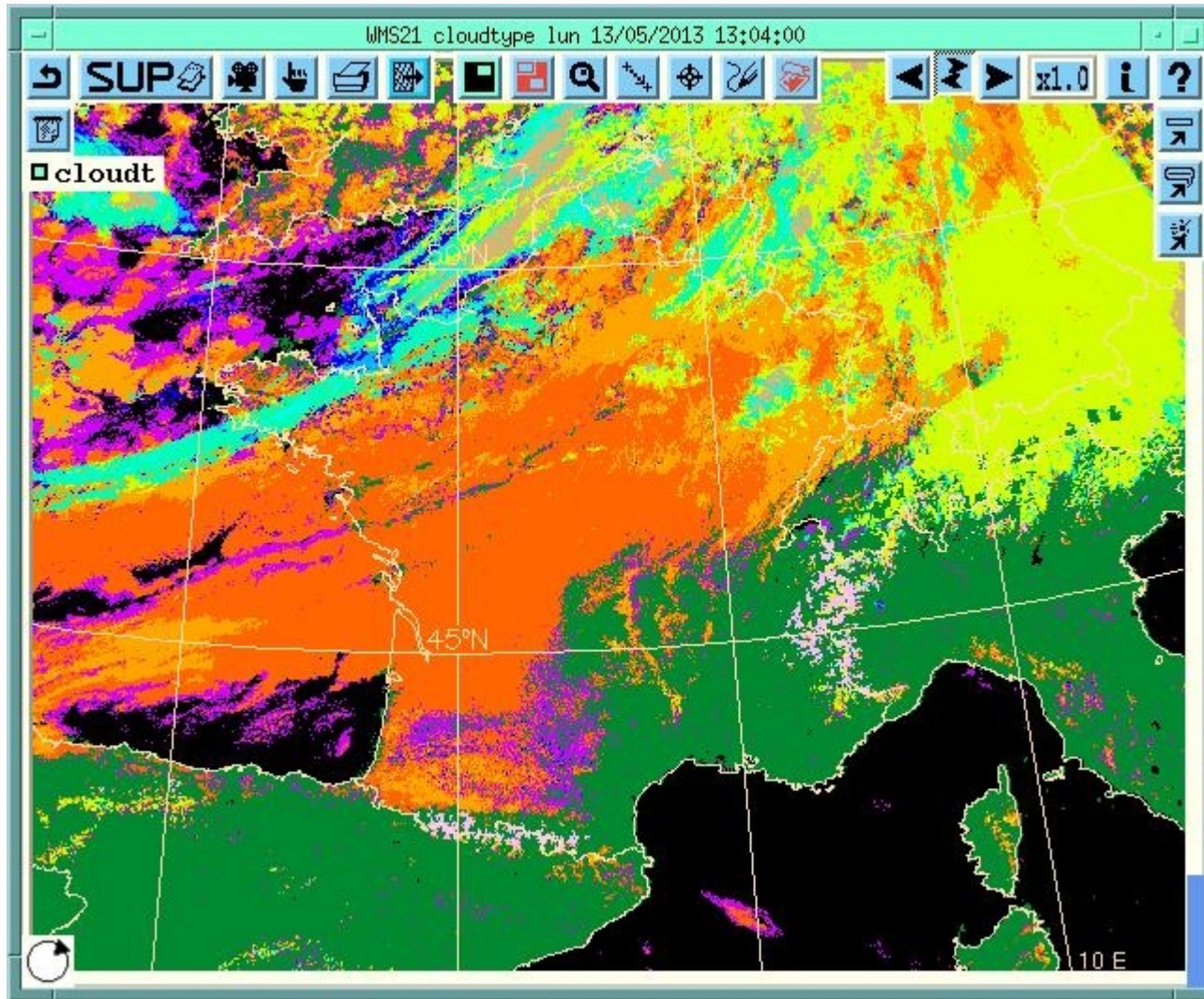
Output HDF5:

- Cloud mask
- Cloud type
- Cloud top temperature and pressure
- Cloud mask quality

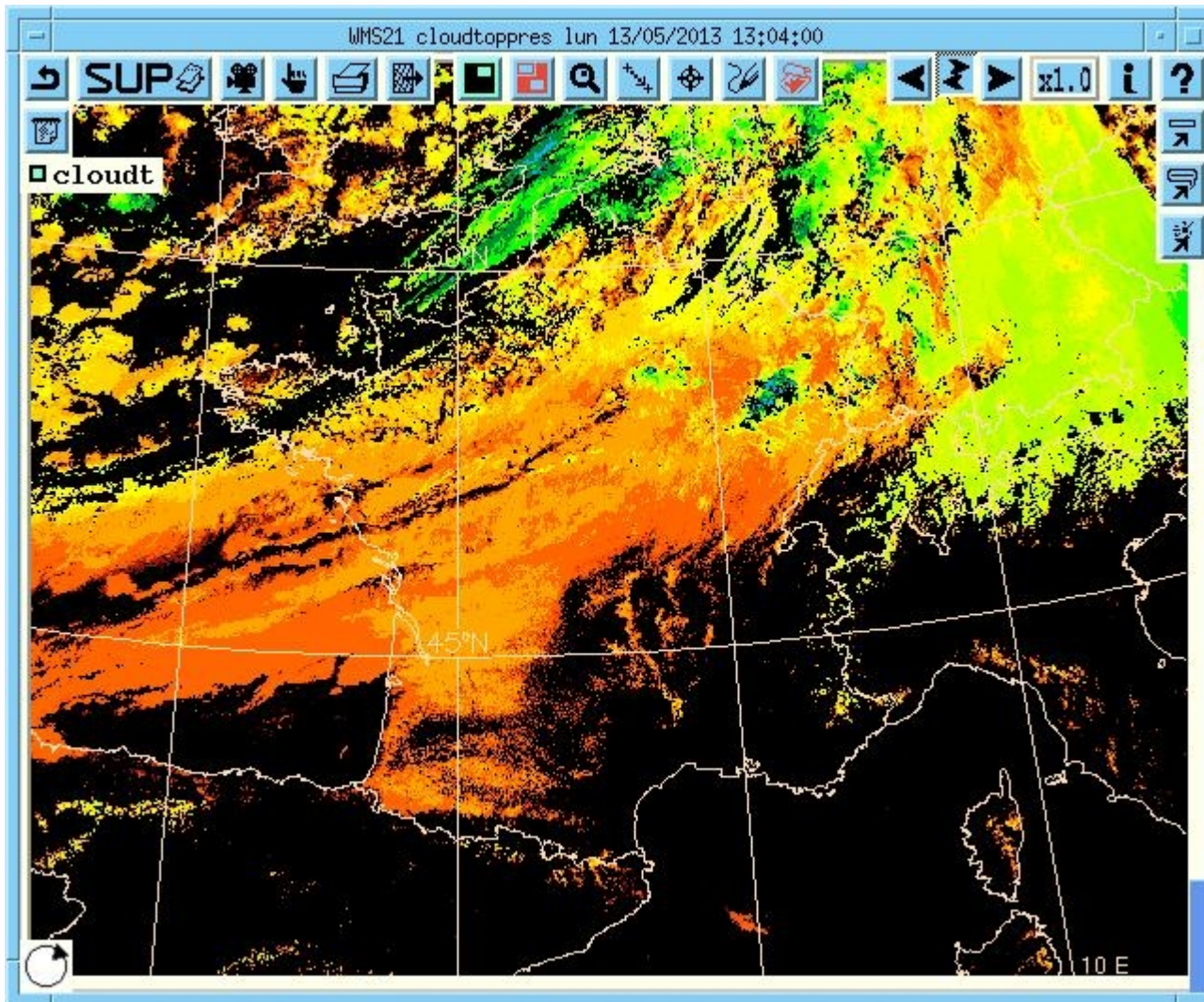
Has been run routinely since summer 2012

Available soon through AAPP 7.5 NWP SAF

MAIA Cloud Type



MAIA Cloud Top Pressure



	$P < 125$ hPa
	$125 < P < 175$ hPa
	$175 < P < 225$ hPa
	$225 < P < 275$ hPa
	$275 < P < 325$ hPa
	$325 < P < 375$ hPa
	$375 < P < 425$ hPa
	$425 < P < 475$ hPa
	$475 < P < 525$ hPa
	$525 < P < 575$ hPa
	$575 < P < 625$ hPa
	$625 < P < 675$ hPa
	$675 < P < 725$ hPa
	$725 < P < 775$ hPa
	$775 < P < 825$ hPa
	$825 < P < 875$ hPa
	$875 < P < 925$ hPa
	$925 < P < 975$ hPa
	$975 < P < 1025$ hPa
	$1025 < P < 1075$ hPa
	$P > 1075$ hPa

VIIRS Urban Heat Island Product

This is a new product for MeteoFrance

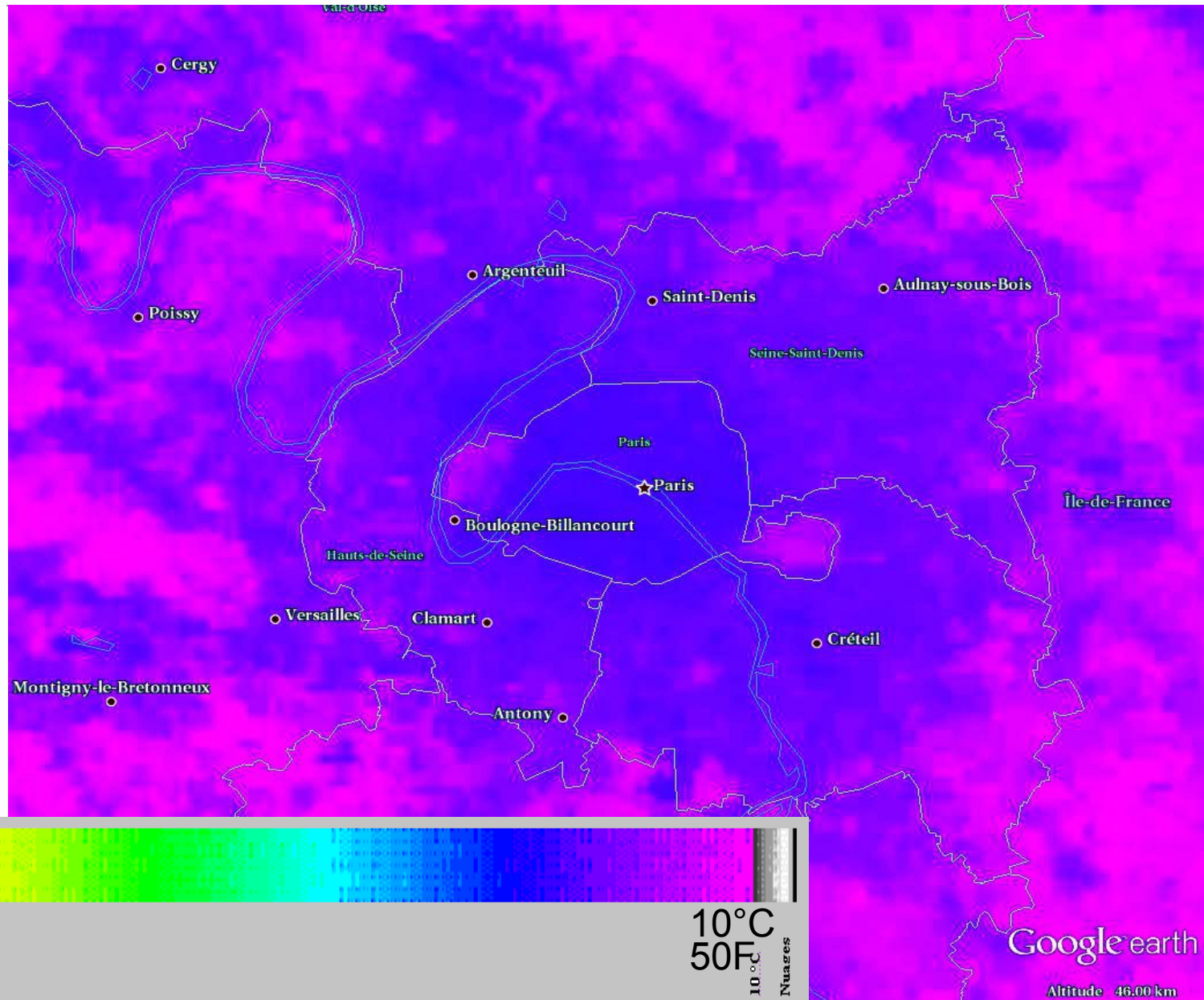
VIIRS I5 GeoTiff image over France (EPSG 4326)
0.0025° (277m) resolution (3882x3144)

+ associated data for RTM:

- Brightness temperature
- Satellite zenith angle

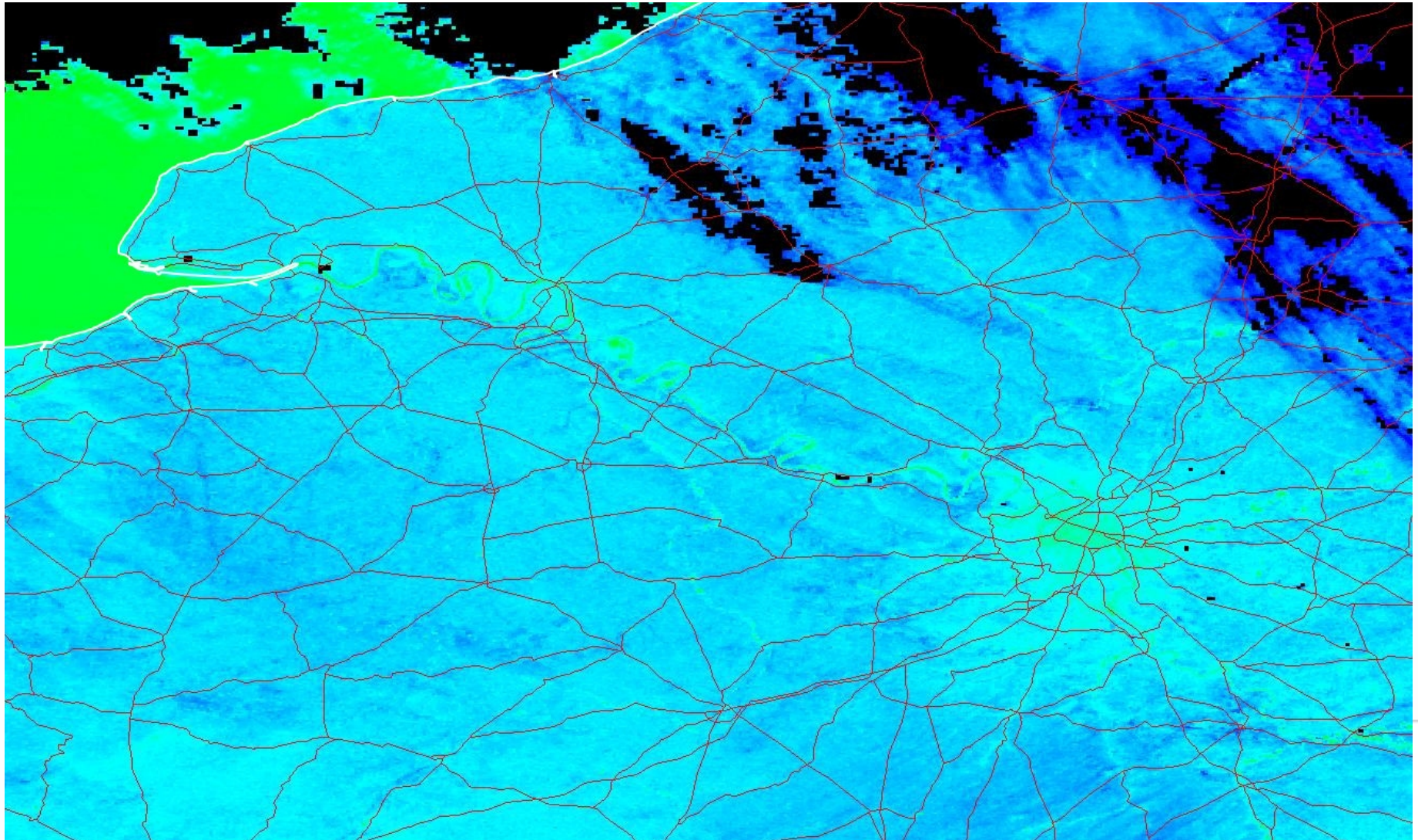
+ I4 and I2 images

VIIRS Urban Heat Island Product



Winter Roads Temperatures

-15°C -14°C -13°C -12°C -11°C -10°C -9°C -8°C -7°C -6°C -5°C -4°C -3°C -2°C -1°C 0°C 1°C 2°C 3°C 4°C 5°C 6°C 7°C



VIIRS Coloured Composite Images

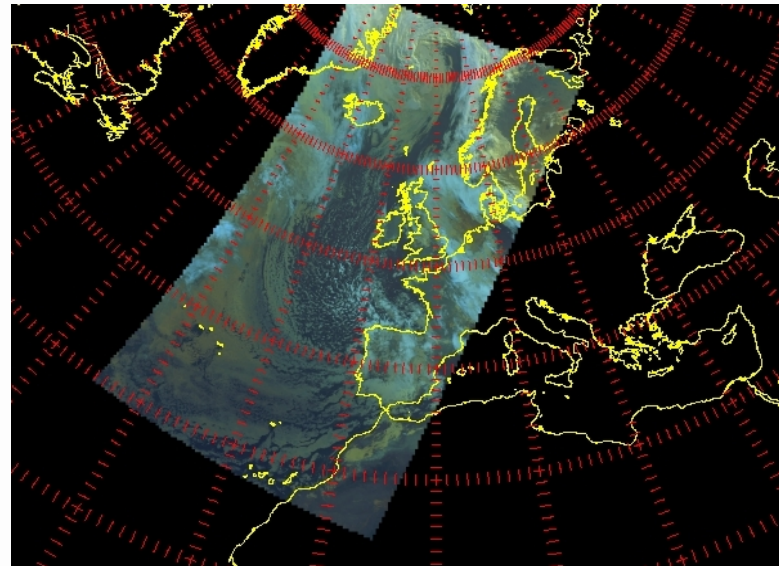
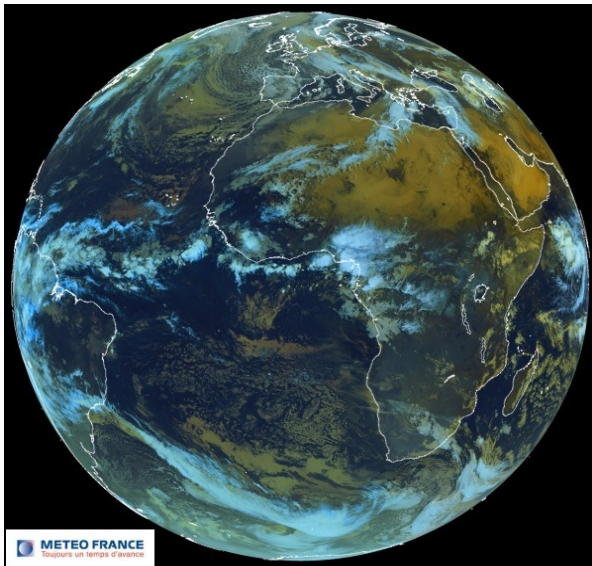
Meteo-France coloured composite images

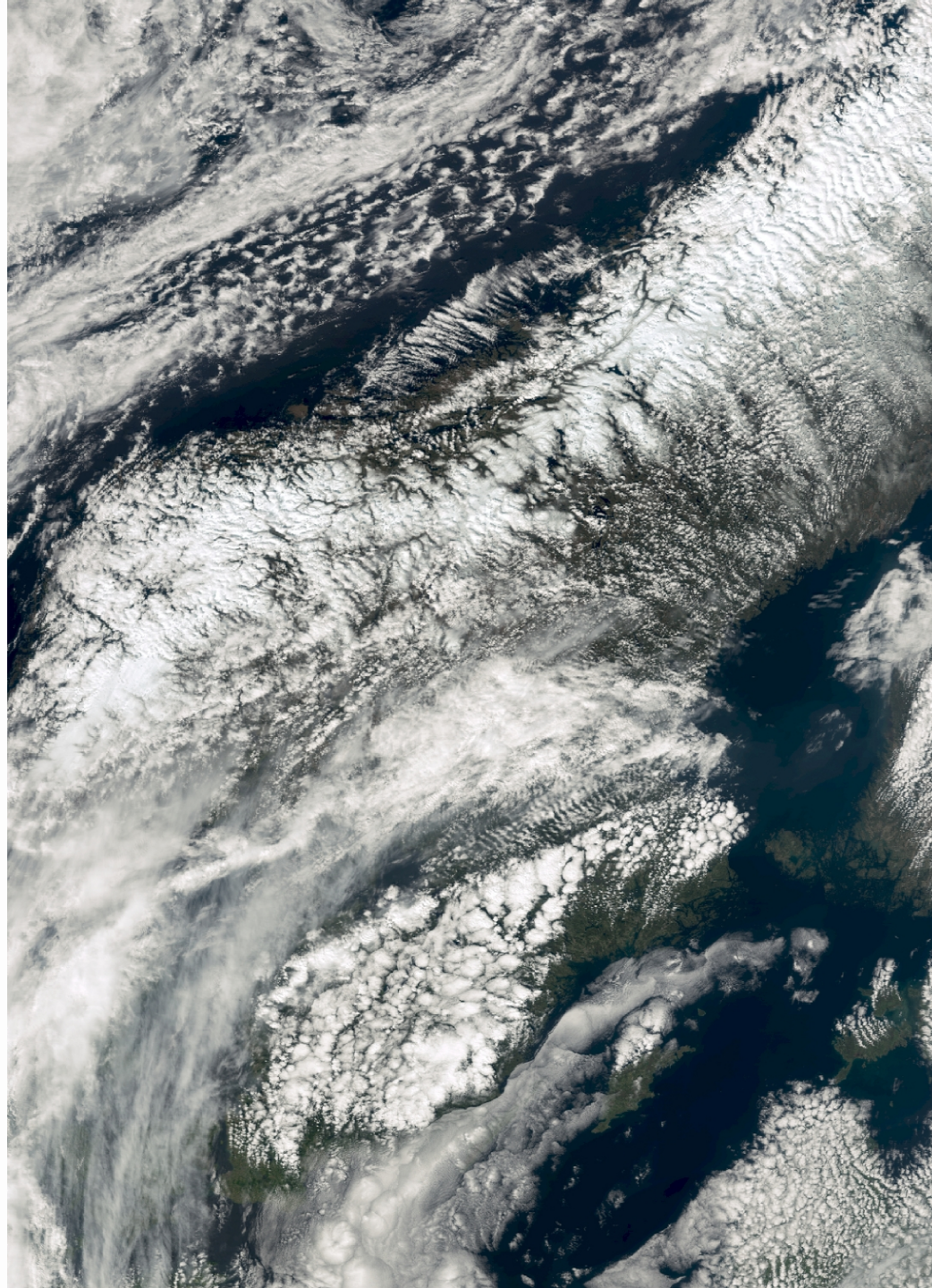
Purpose :

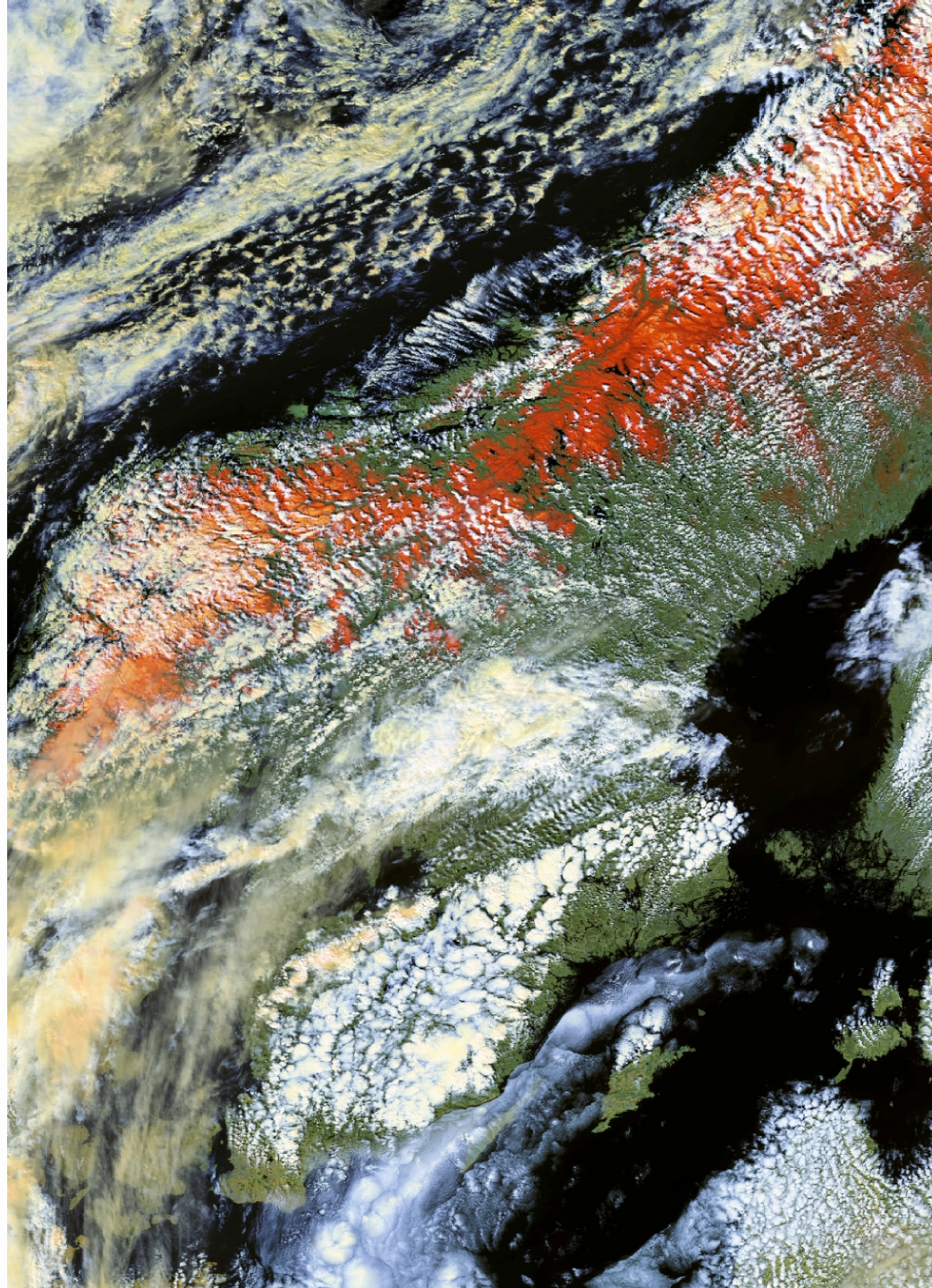
Synthesize multi-spectral information

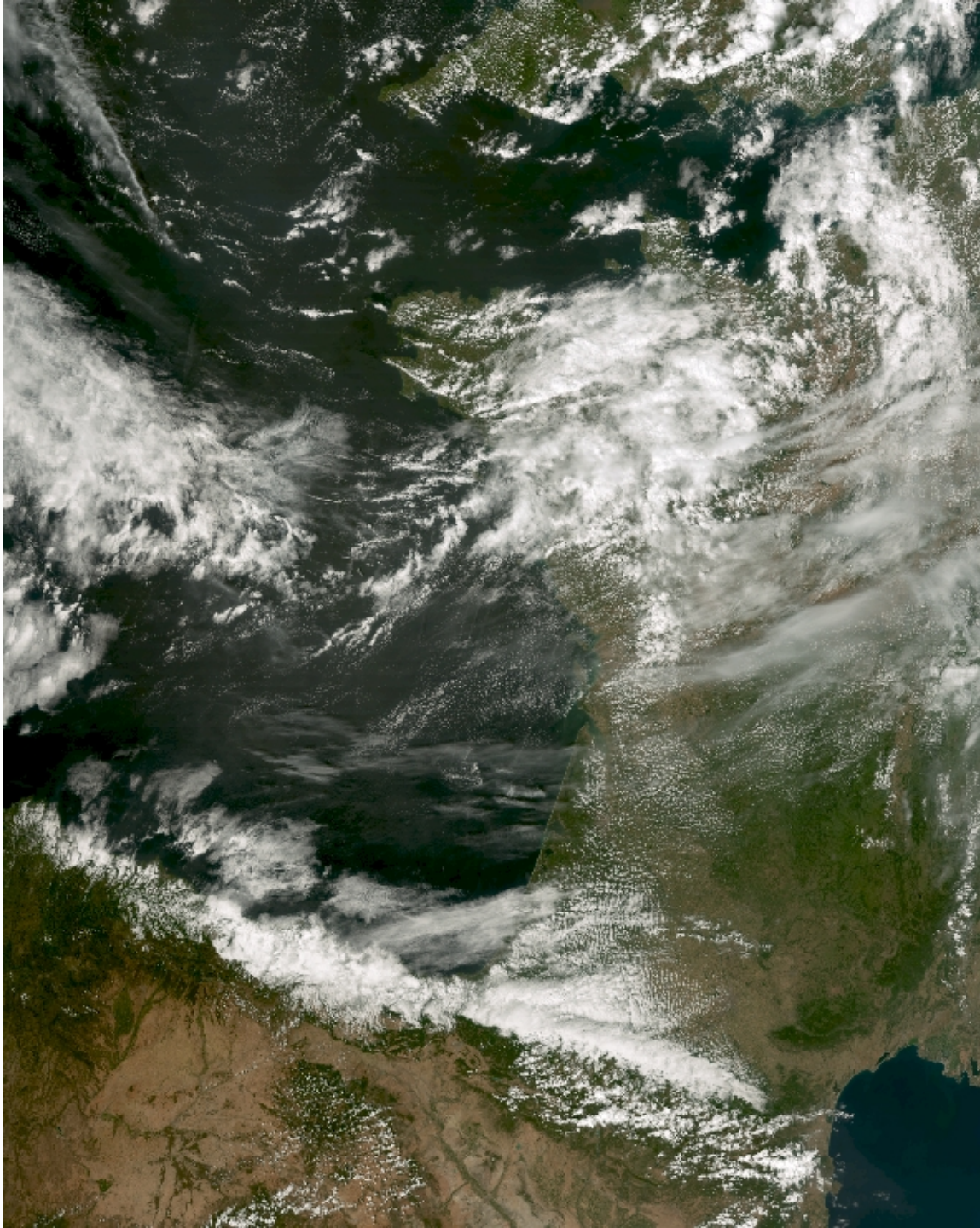
To give forecasters better recognition of clouds or phenomena
(sand, dust, snow)

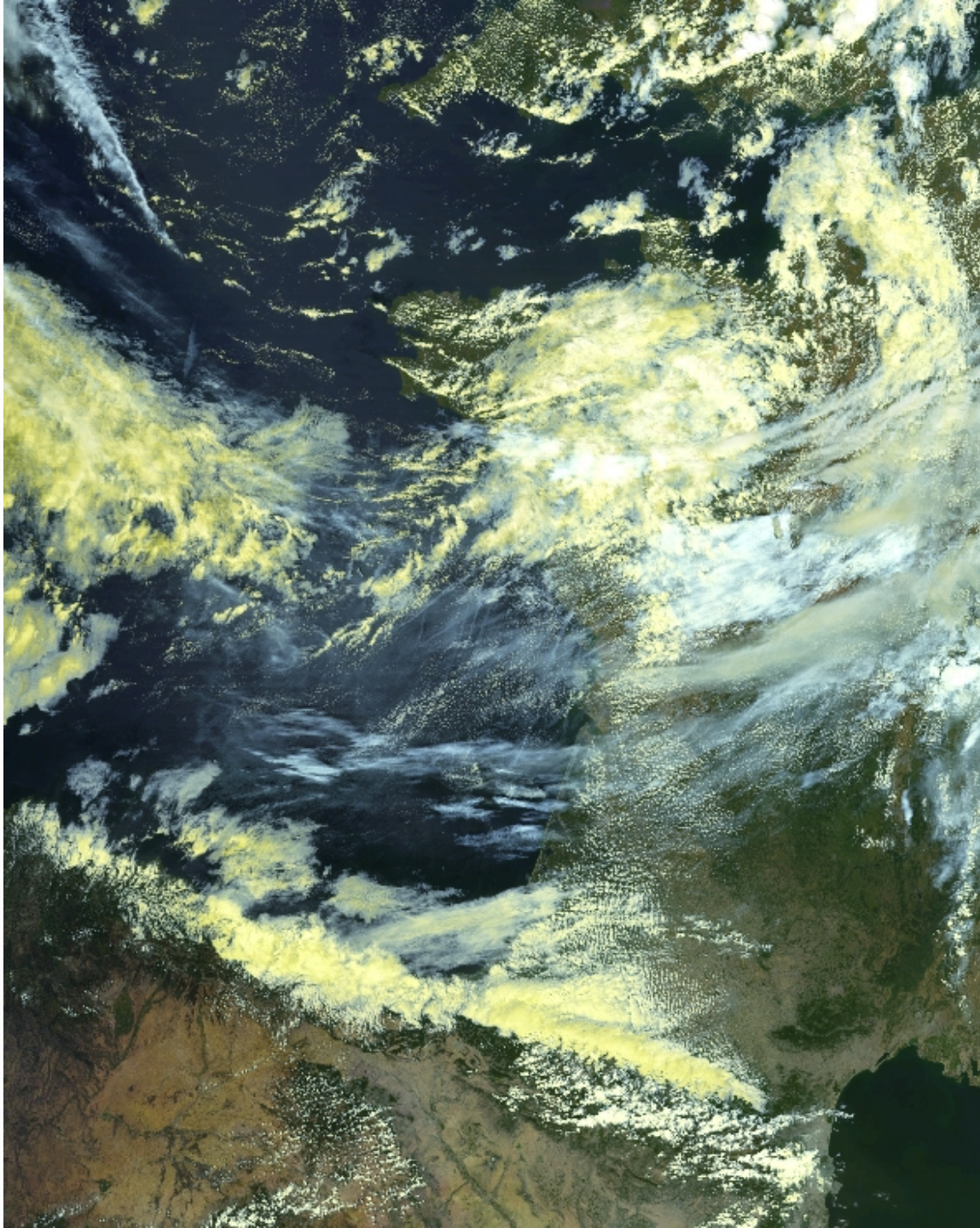
LEO images are used as a complement of Meteosat Second Generation
Images



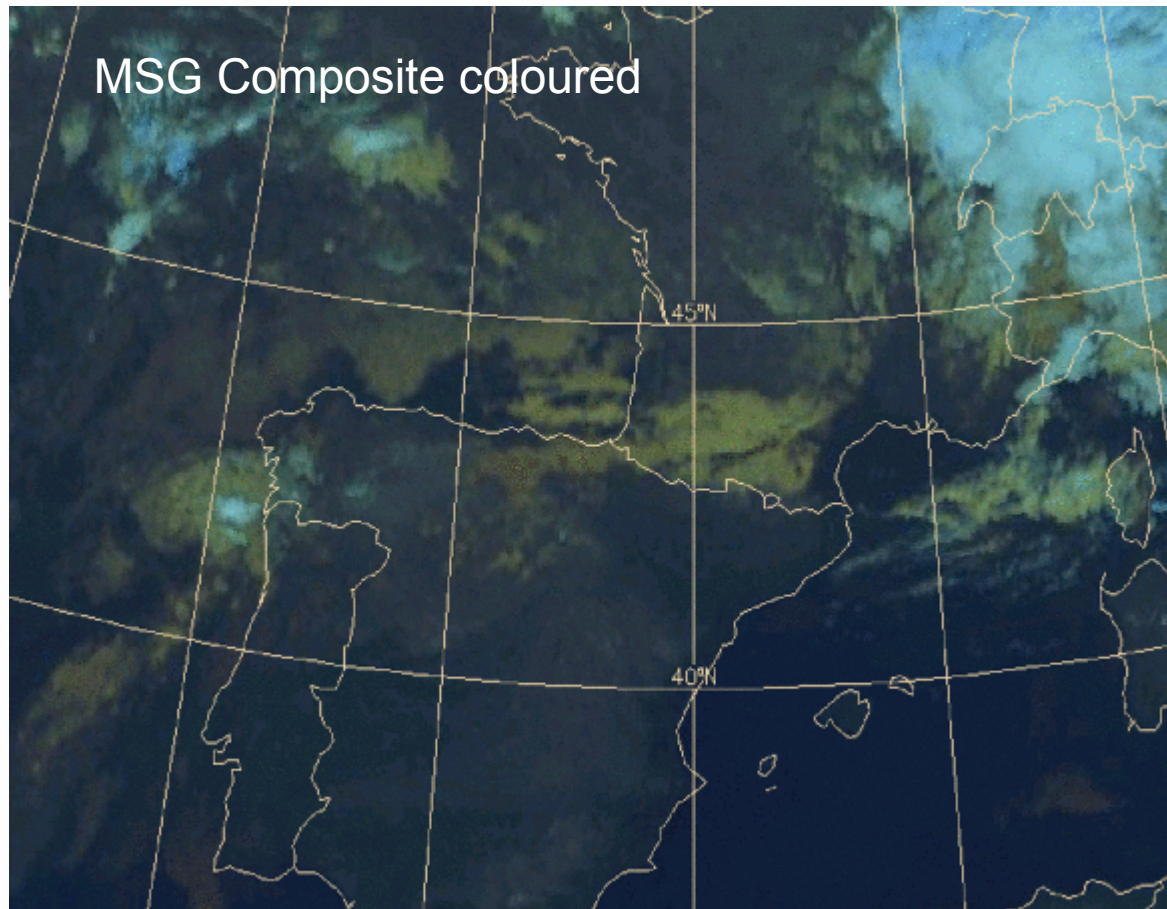




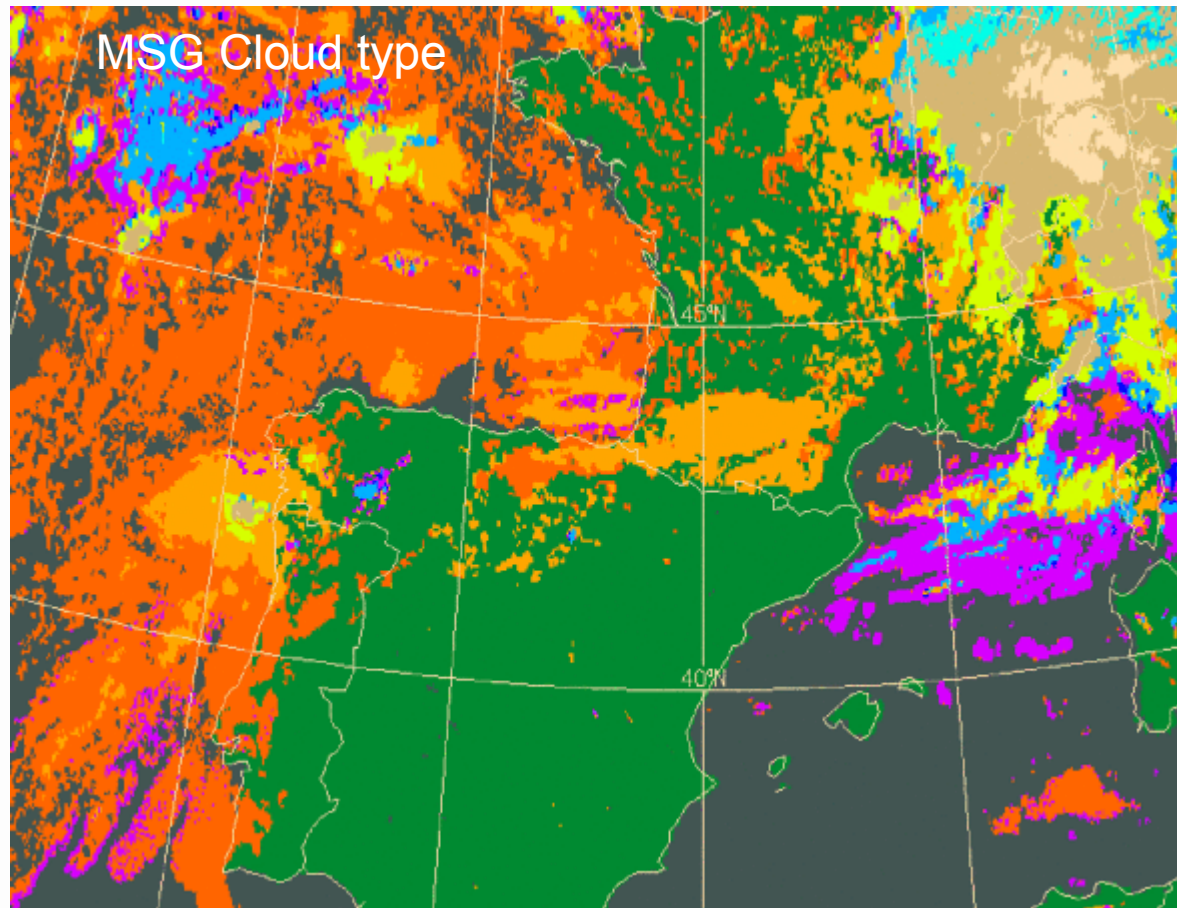




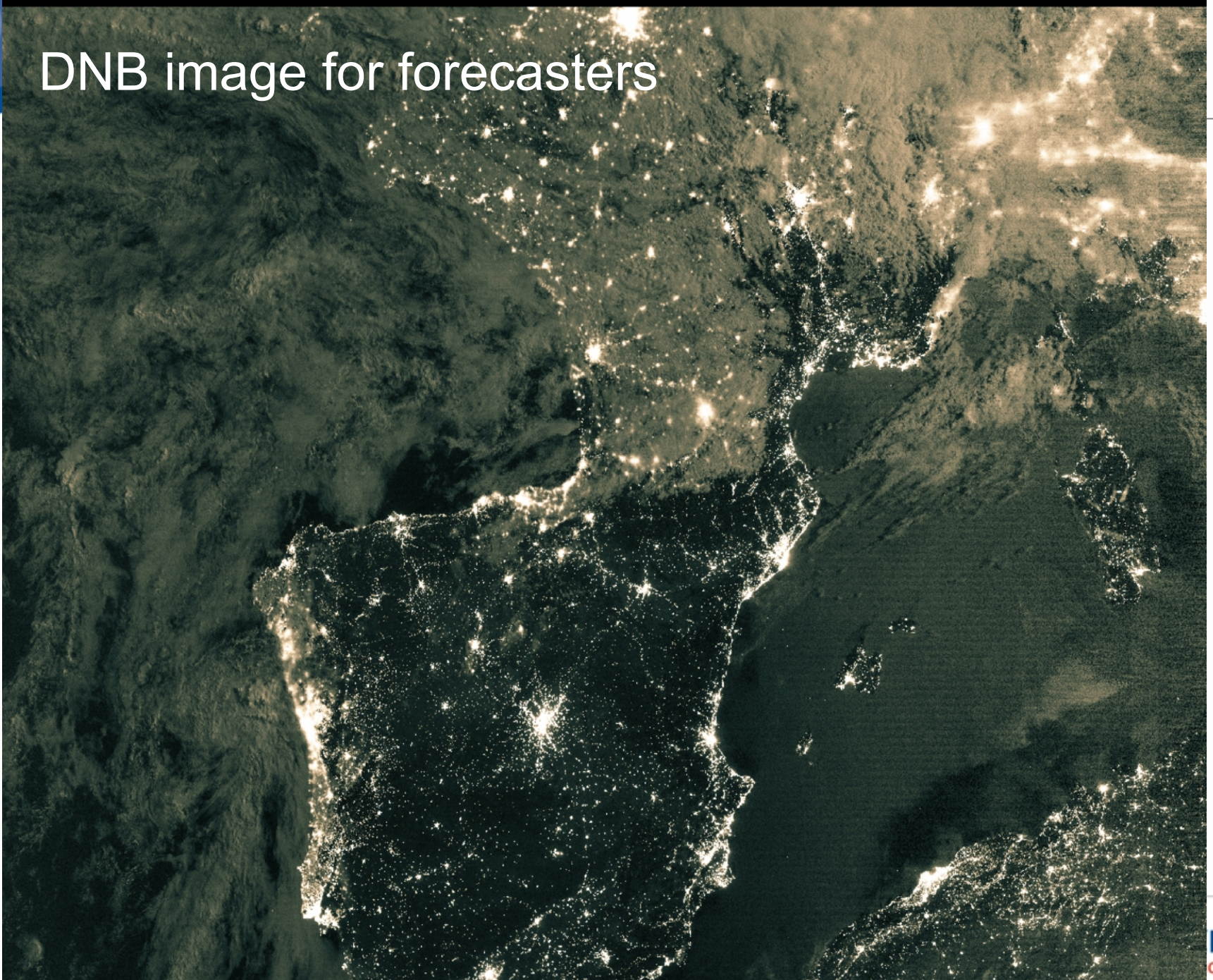
Low Clouds at Night 9/10/2012 2h30



low clouds at night 9/10/2012 2h30



DNB image for forecasters



VIIRS Sea Surface Temperature Products for the Ocean and Sea Ice SAF

Pre-operational since mid October 2012

Cloud mask control completed

Final product ready (GDSV2.0 in netcdf4)

Operational delivery to start mid 2013

NWP derived correction will be introduced afterward

Validation results are OK

- Cloud free coverage significantly larger than NOAA-19
- Daytime and night-time standard deviation: 0.46 and 0.37 K resp

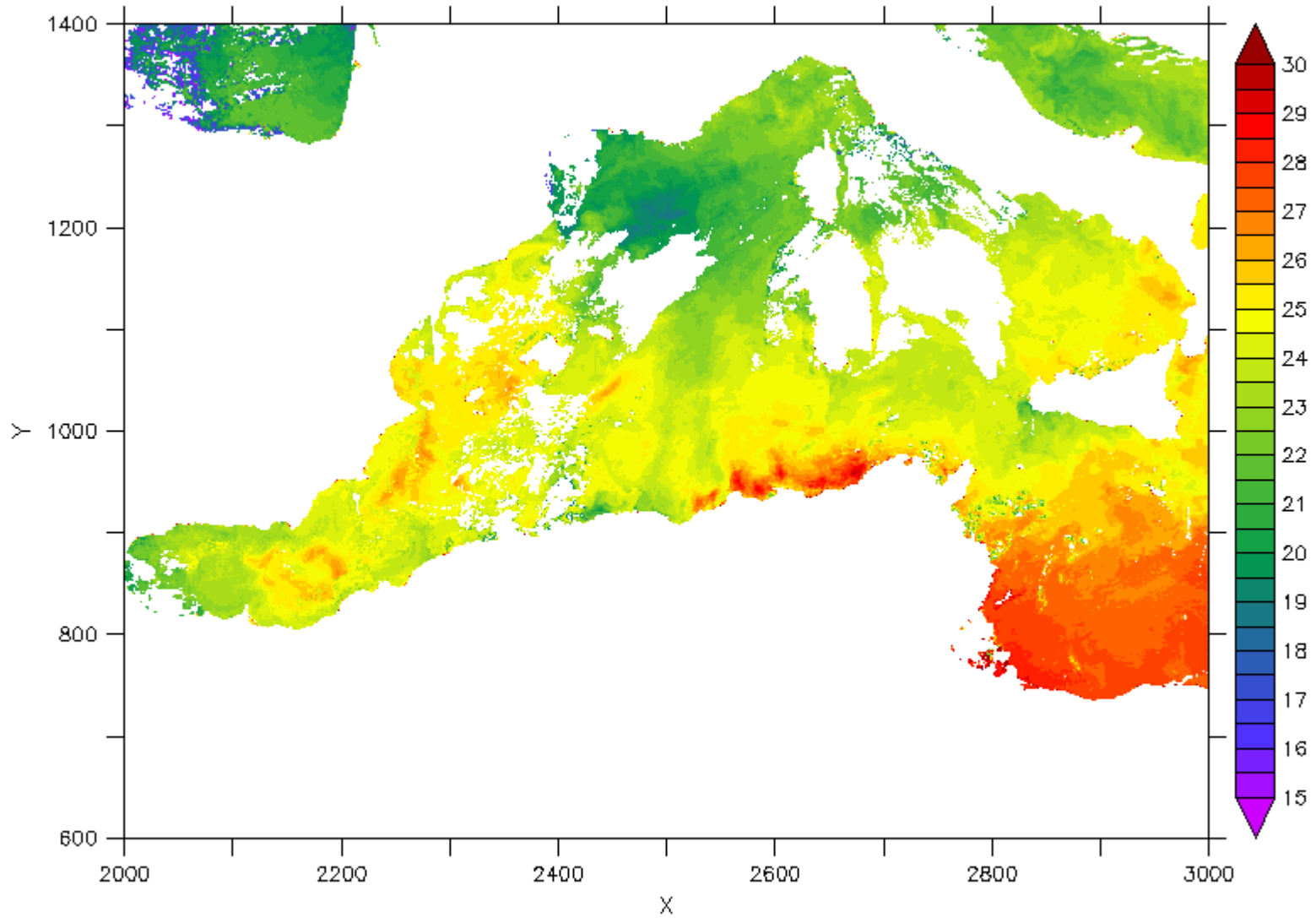
Next phases:

- Starting operational delivery (mid 2013)
- NWP derived BT simulations and bias correction/Optimal Estimation

VIIRS SST field on the 22 Sept 2012

FERRET Ver. 6.71
NOAA/NCEP TMAP
22-SEP-2012 10:13:00

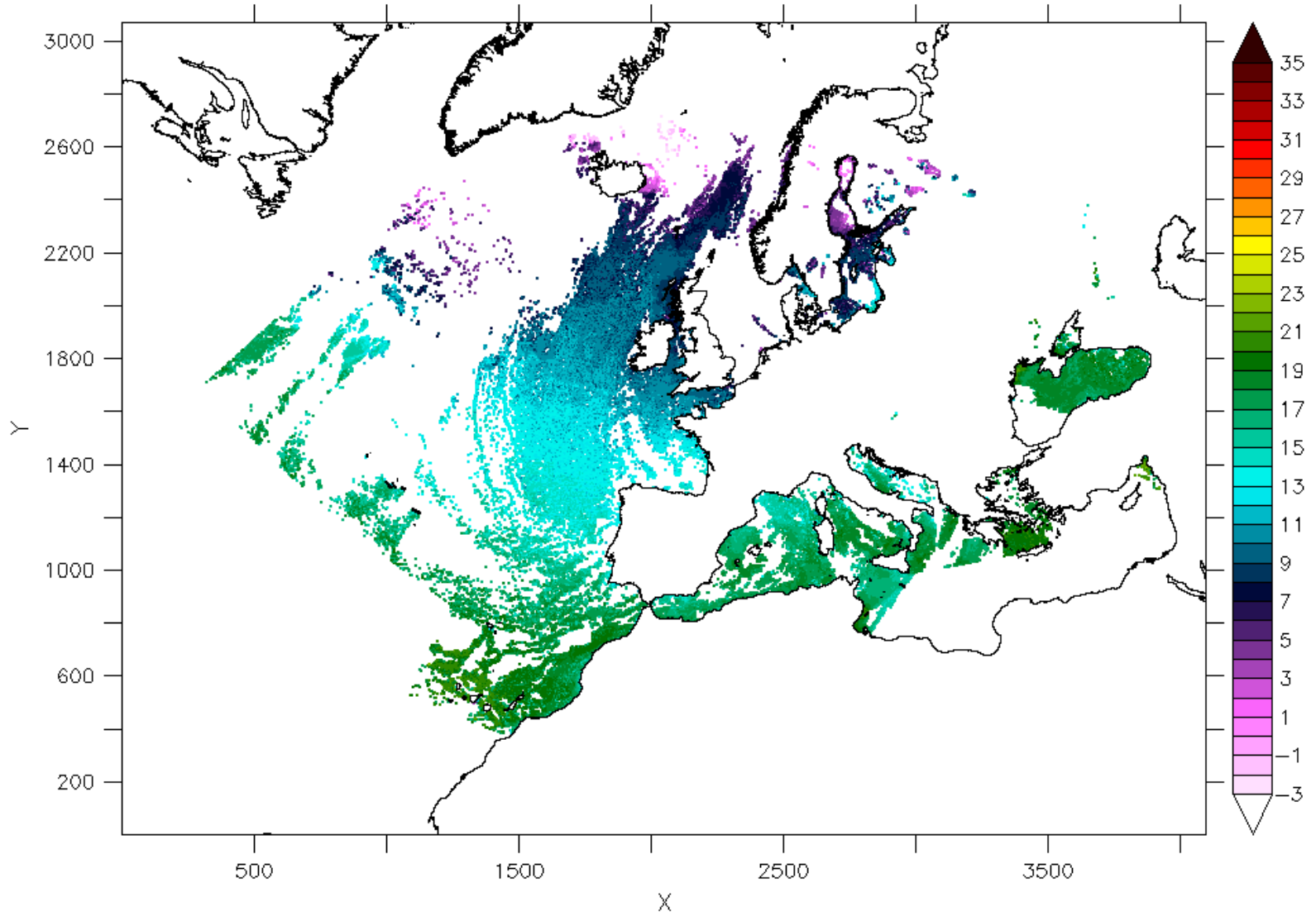
DATA SET: sstnar_npp_20120922_130000



SST-273.15

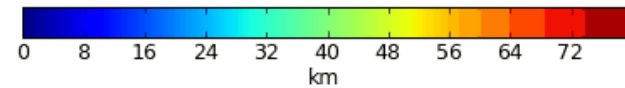
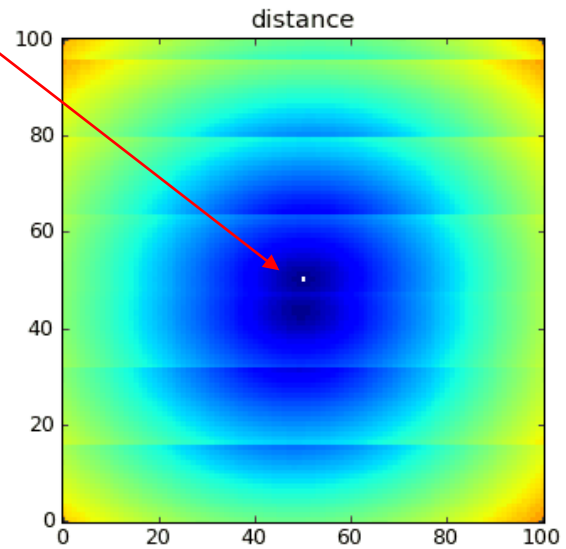
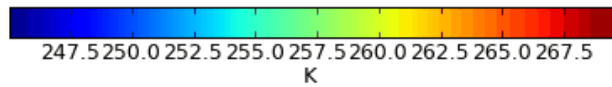
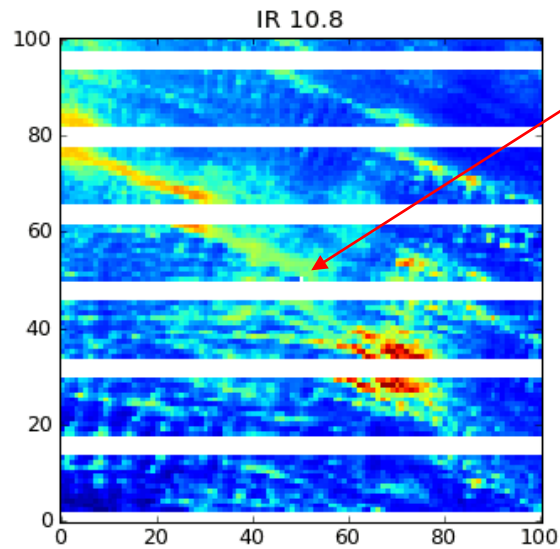


OSI SAF S-NPP NAR SST 2013-05-17 02:00:00 UTC - (C) EUMETSAT



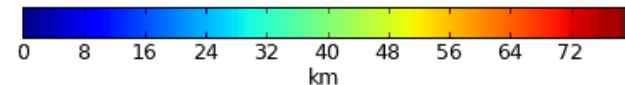
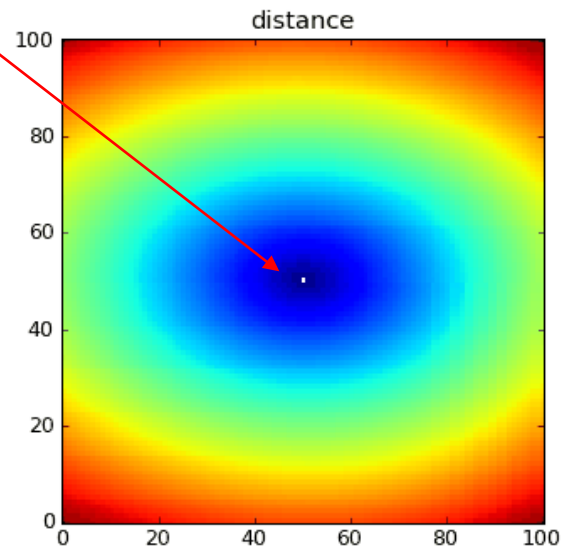
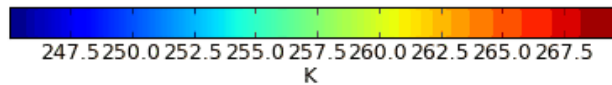
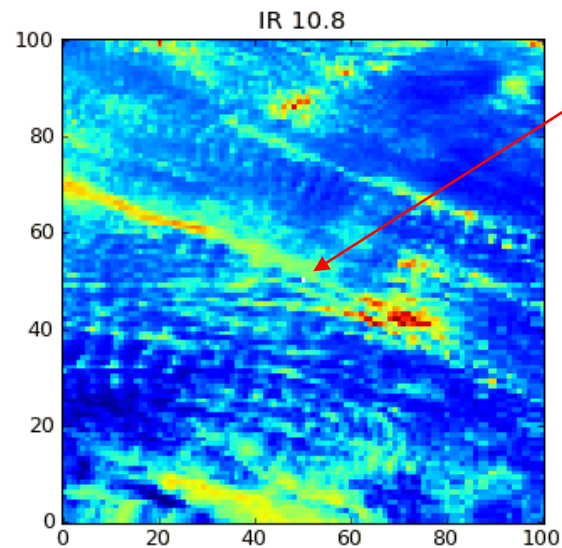
Redundant Pixels Removal

Raw
data



Redundant Pixels Removal

After local adjacency has been determined



SST Overall Validation results

NAR area; 15 October 2012 till 15th March 2013

Quality levels 3-5

	Daytime		Nigh time	
Quality	3-5	5	3-5	5
Number of cases	3088	990	3648	1678
bias	-0.13	-0.10	-0.05	0.03
std-dev	0.46	0.34	0.37	0.29

Web Map Service for the Forecaster Desktop

The screenshot displays a software application titled "Synergie 4.6.0.b.3 [siec] en configuration FULL". The interface is divided into several sections:

- Toolbar:** A horizontal row of icons for navigation and map operations, including a home button, a search icon, and various map controls.
- Configuration Panel (Applicatif WMS):**
 - Sélection du type de site:** Buttons for "WMS" (selected) and "GEOWEB".
 - URL disponibles:** A list of WMS URLs, including:
 - http://geoservices.knmi.nl/cgi-bin/OMI_OPER_R_TDCSO2_L3.cg
 - http://disc1.sci.gsfc.nasa.gov/daac-bin/wms_airsrt
 - http://synthese2.meteo.fr:8080/public/api/ogc/wms/satellite/raster/
 - http://synthese.meteo.fr:8080/public/api/ogc/wms/radar/
 - http://heaux.cms.meteo.fr:8080/public/api/ogc/wms/radar/
 - http://heaux.cms.meteo.fr:8080/public/api/ogc/wms/satellite/raster/
 - http://synthese2.meteo.fr:8080/public/api/ogc/wms/basemap/vector
 - http://log.cms.meteo.fr/cgi-bin/wms/npp.py
 - http://wms.cms.meteo.fr/cgi-bin/wms/npp.py
 - Couches disponibles:** A list of layers with radio buttons:
 - i4
 - i5
 - m3
 - m4
 - m5
 - truecolor_m
 - cloudtype
 - cloudtoppres
 - cloudtoptemp
 - dnb
 - Sélection Date:** A dropdown menu showing "2013-05-13".
 - Sélection Heure:** A dropdown menu showing "13:04:00".
 - Selection ecran:** Four small thumbnail images representing different map views.
 - Selection domaine de v:** A section for selecting a domain, currently empty.
 - Buttons:** "Valider", "Quitter", and "Kill Preview".
- Map Windows:**
 - Top Right:** A window titled "WMS17 truecolor_m" showing a satellite-style map of a region with a color-coded overlay in shades of blue and purple.
 - Bottom Right:** A window titled "WMS21 cloudtype lun 13/05/2013 13:04:00" showing the same geographic area with a "cloudtype" overlay using a vibrant color scale from purple to orange to red.

Special thanks to:

- L. Lavanant
- B. Bellec
- D. Dago
- S. Guevel
- J-B. Hernandez
- S. Lemoal
- SAFO CMS team

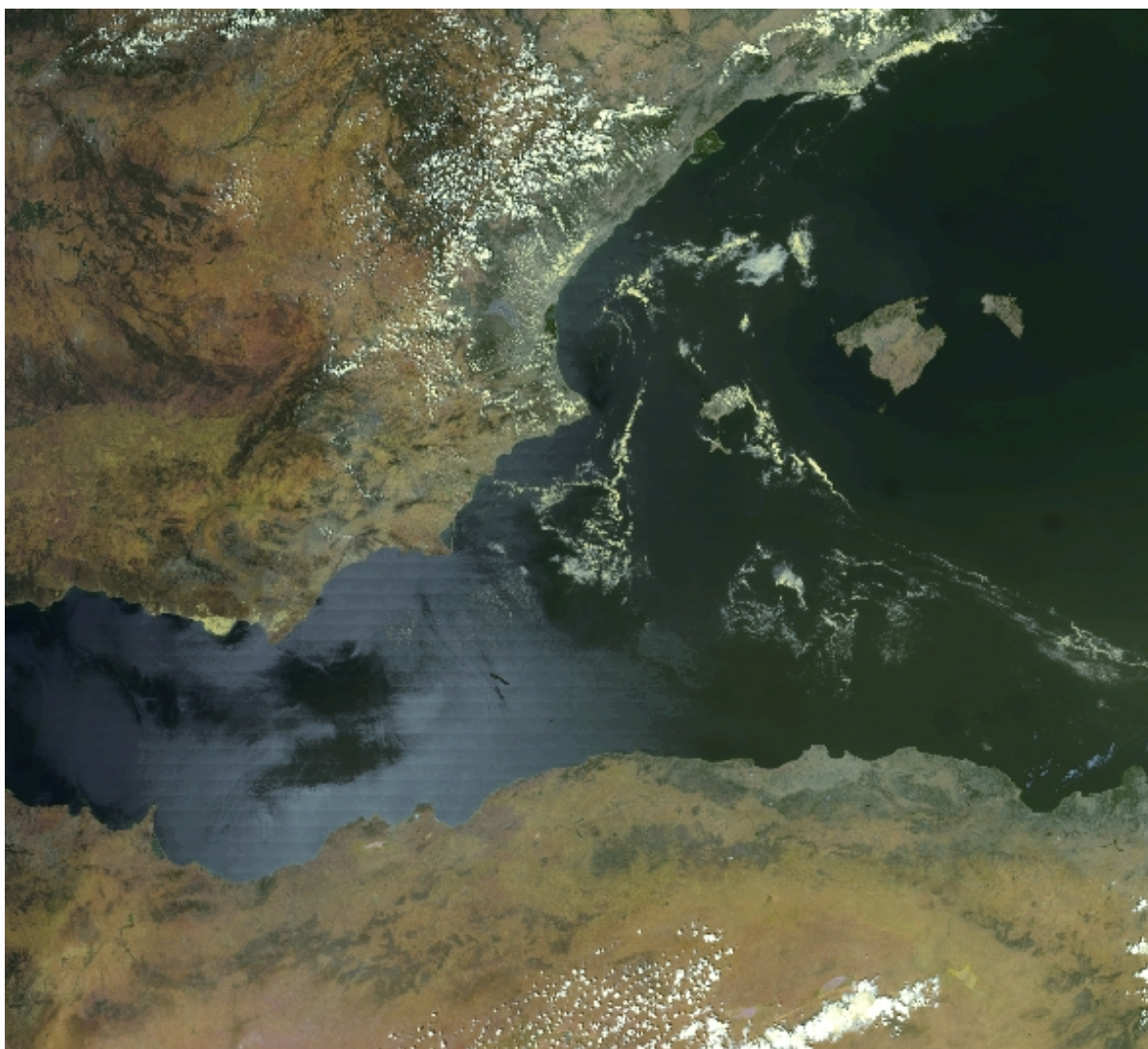
An aerial photograph of a town, likely in the Alps, is shown from a high angle. The town is surrounded by green hills and is partially obscured by a thick layer of white clouds. Overlaid on the bottom half of the image is a white weather map with contour lines and arrows. The contour lines are labeled with values such as 1010, 1015, 1020, 1025, 1030, 1035, 1040, and 1045. The arrows indicate wind direction and speed. The word "End" is written in large, white, sans-serif font across the bottom center of the image.

End

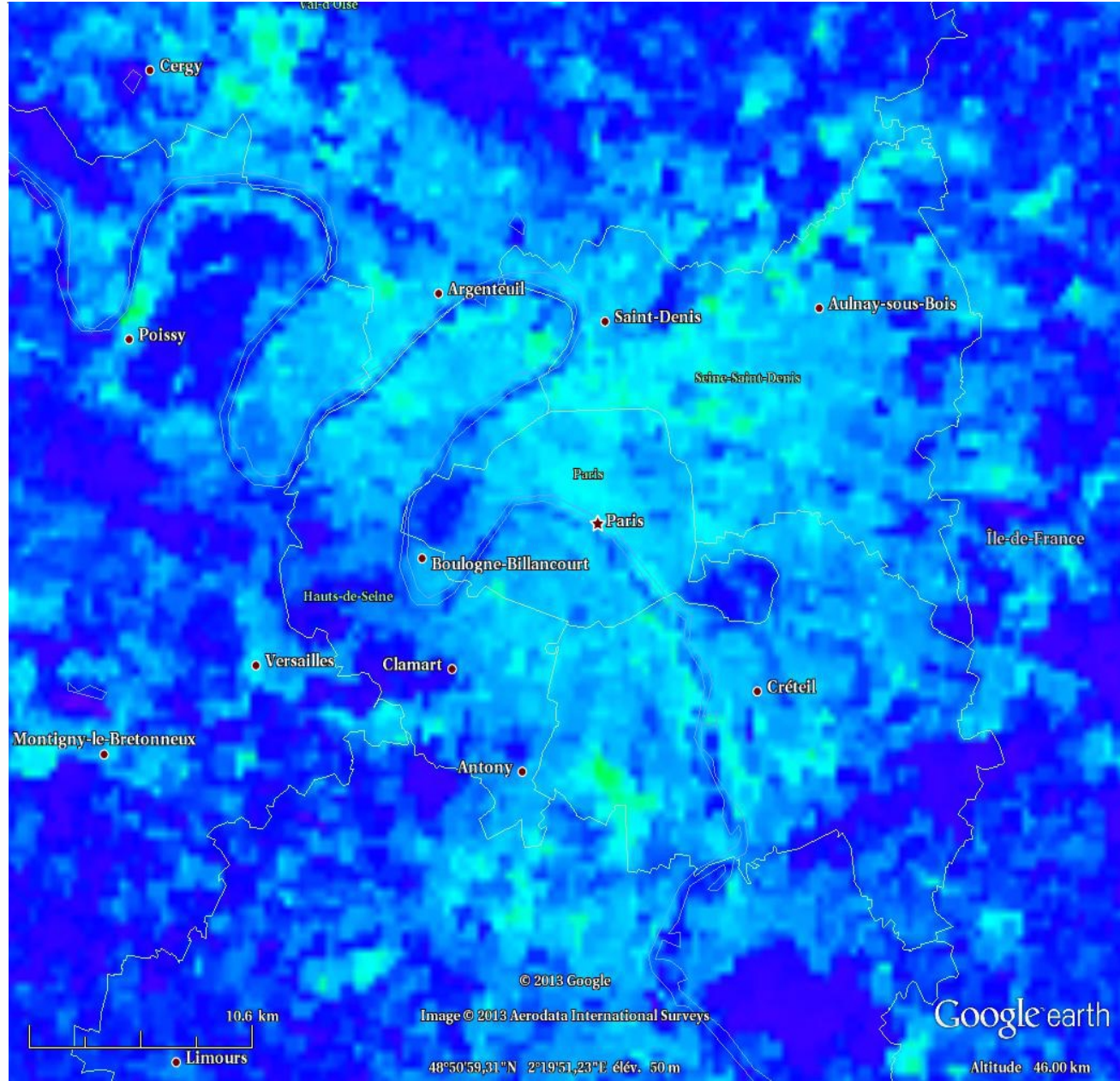


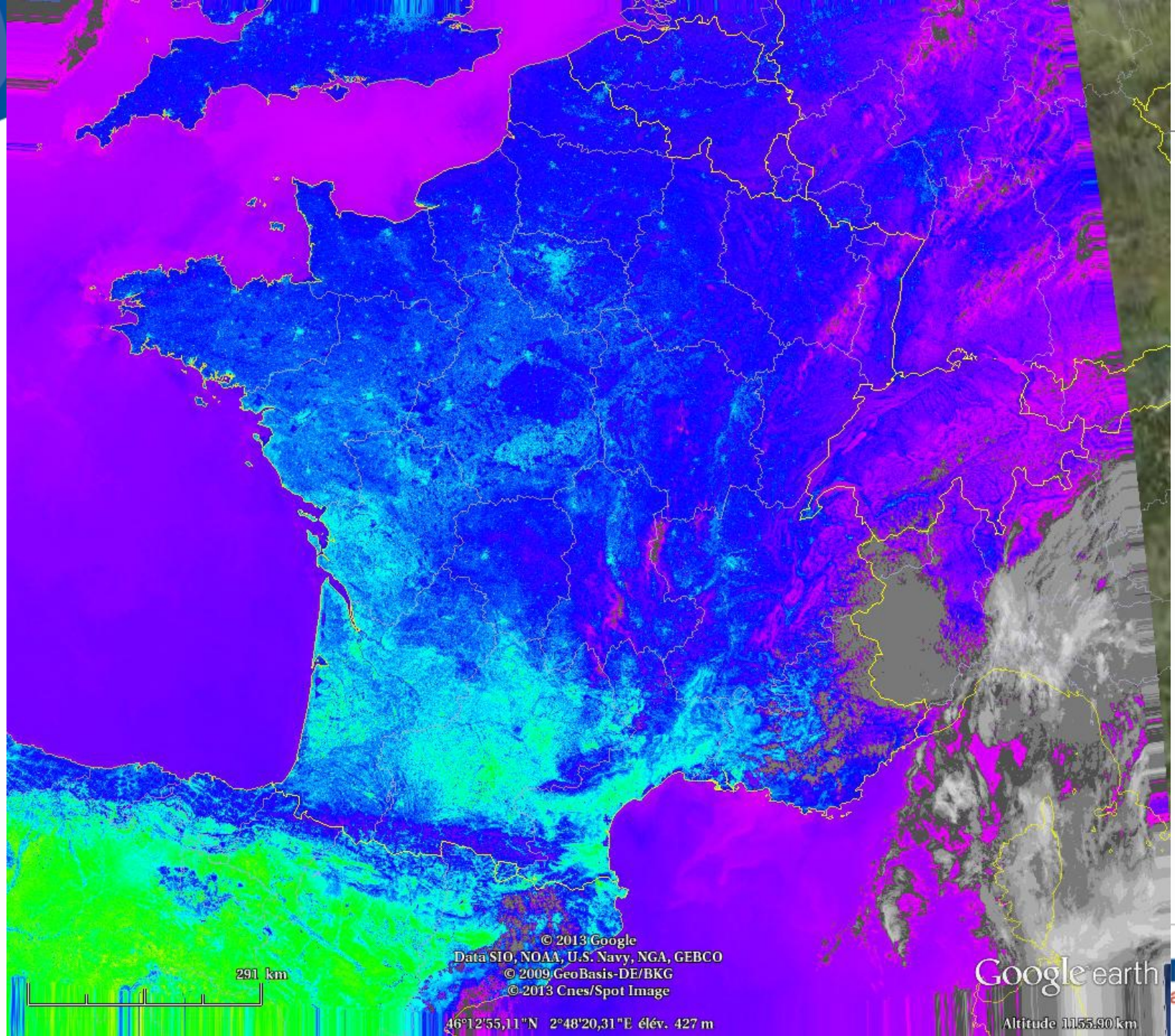
Backup slides





VIIRS Urban heat island product





291 km

© 2013 Google
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2009 GeoBasis-DE/BKG
© 2013 Cnes/Spot Image

46°12'55,11"N 2°48'20,31"E élév. 427 m

Google earth **NCE**
avance

Altitude 11155,90 km

NPP DNB 5 Oct 2012 1h48

