Satellite Application Facility on Ocean and Sea Ice (OSI SAF)

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Darmstadt, 4th June 2018

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About OSI SAF

- EUMETSAT SAFs : dedicated centres of excellence for processing satellite data

- OSI SAF : answer to requirements from the meteorological and oceanographic communities, for comprehensive information derived from meteorological satellites at the ocean-atmosphere interface

About OSI SAF

- The OSI SAF develops, processes and distributes, in near real-time, products related to key parameters of the ocean-atmosphere interface.

- The OSI SAF team focuses on

  - Scatterometer winds,

  - Sea Surface Temperature (SST) and sea Ice Surface Temperature (IST),

  - Radiative fluxes : Surface Short wave Irradiance (SSI) and Downward Long wave Irradiance (DLI),

  - Sea ice concentration, edge, type, emissivity, drift.

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Three OSI SAF subsystems

Research, development and production are based on 3 subsystems :

- Low and Mid Latitude (LML) subsystem
    - SST and radiative fluxes for LML, NAR and GLB areas
- High Latitude (HL) subsystem
    - SST and radiative fluxes for HL areas
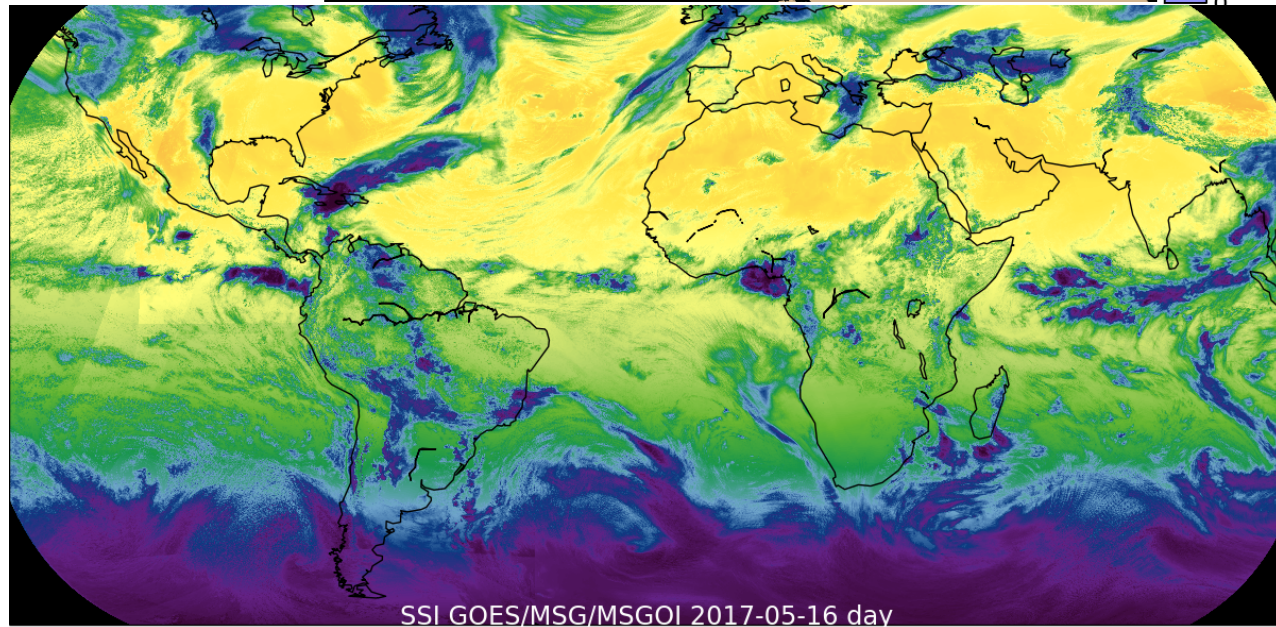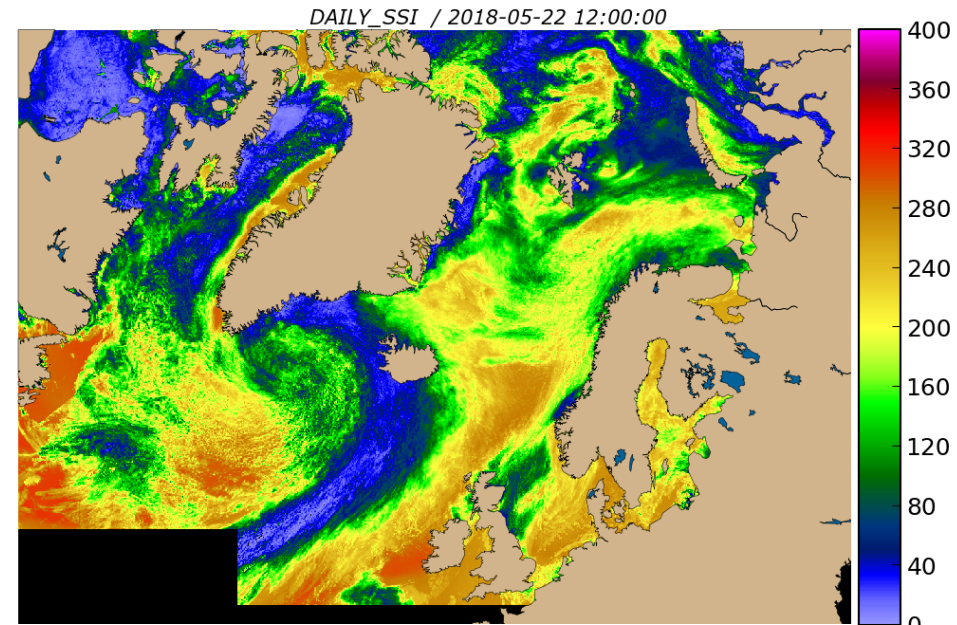   - Sea ice
- Wind (WIND) subsystem
    - Scatterometer winds

Radiative fluxes products

Two variables:

- Downward longwave irradiance

- Surface solar irradiance

- Daily products for high latitudes (polar orbiters)
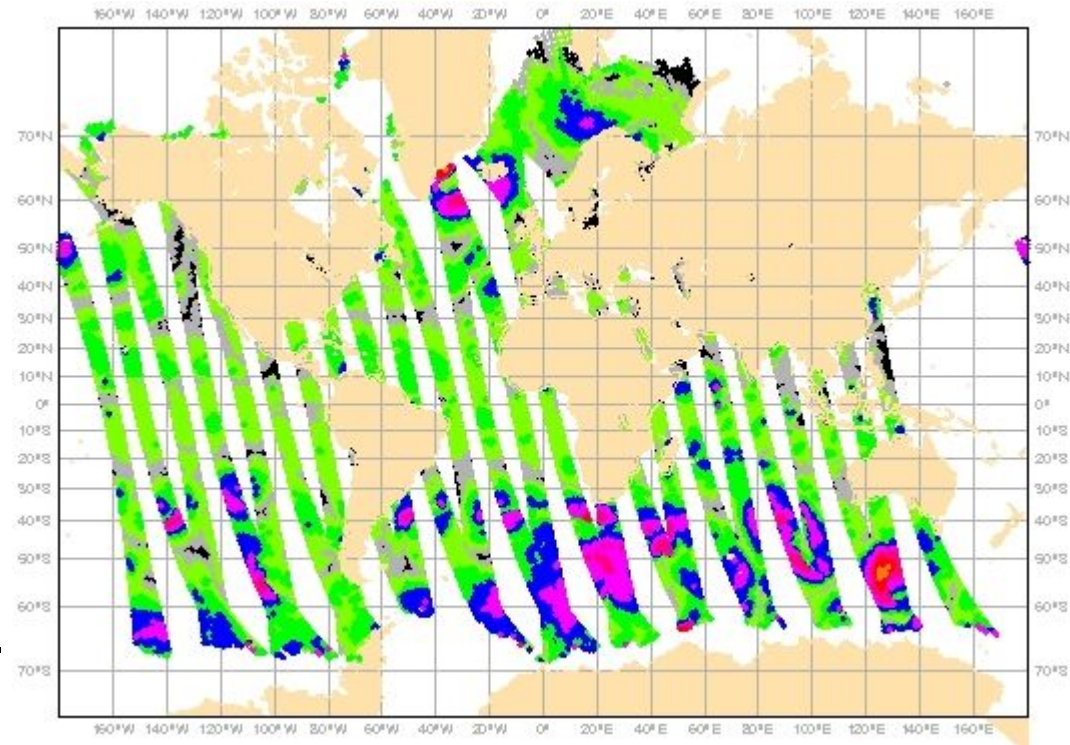- Hourly and daily from geostationary satellites

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DAILY_SSI / 2018-05-22 12:00:00

SSI GOES/MSG/MSGOI 2017-05-16 day

Wind products

Operational products:

Global 12.5, 25km wind direction and wind speed

From ASCAT instrument on Metop-A and Metop-B. From OSCAT on ScatSat-1

Data record:

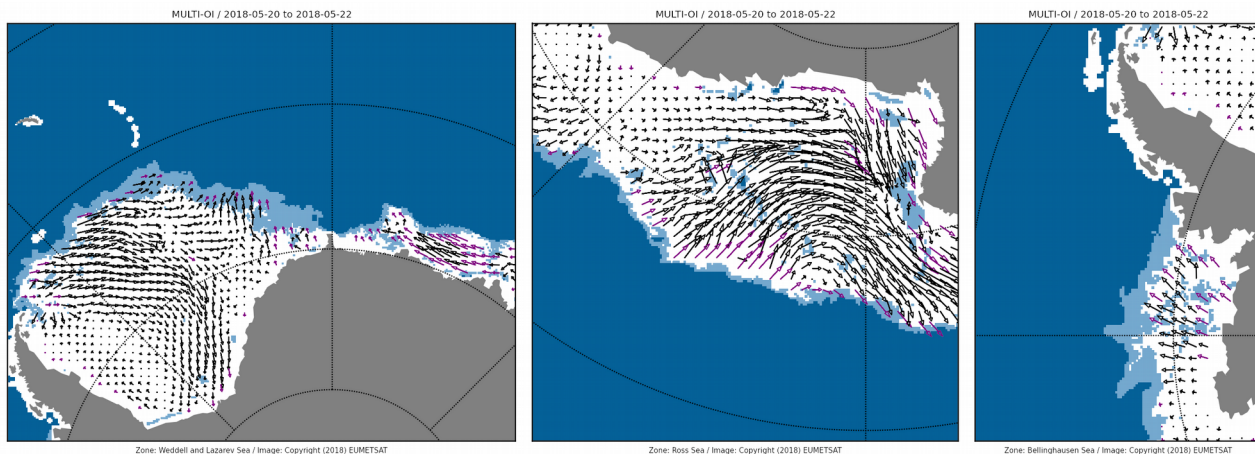Wind direction and wind speed from ASCAT-A, ERS-1 and ERS-2, Oceansat-2, SeaWinds

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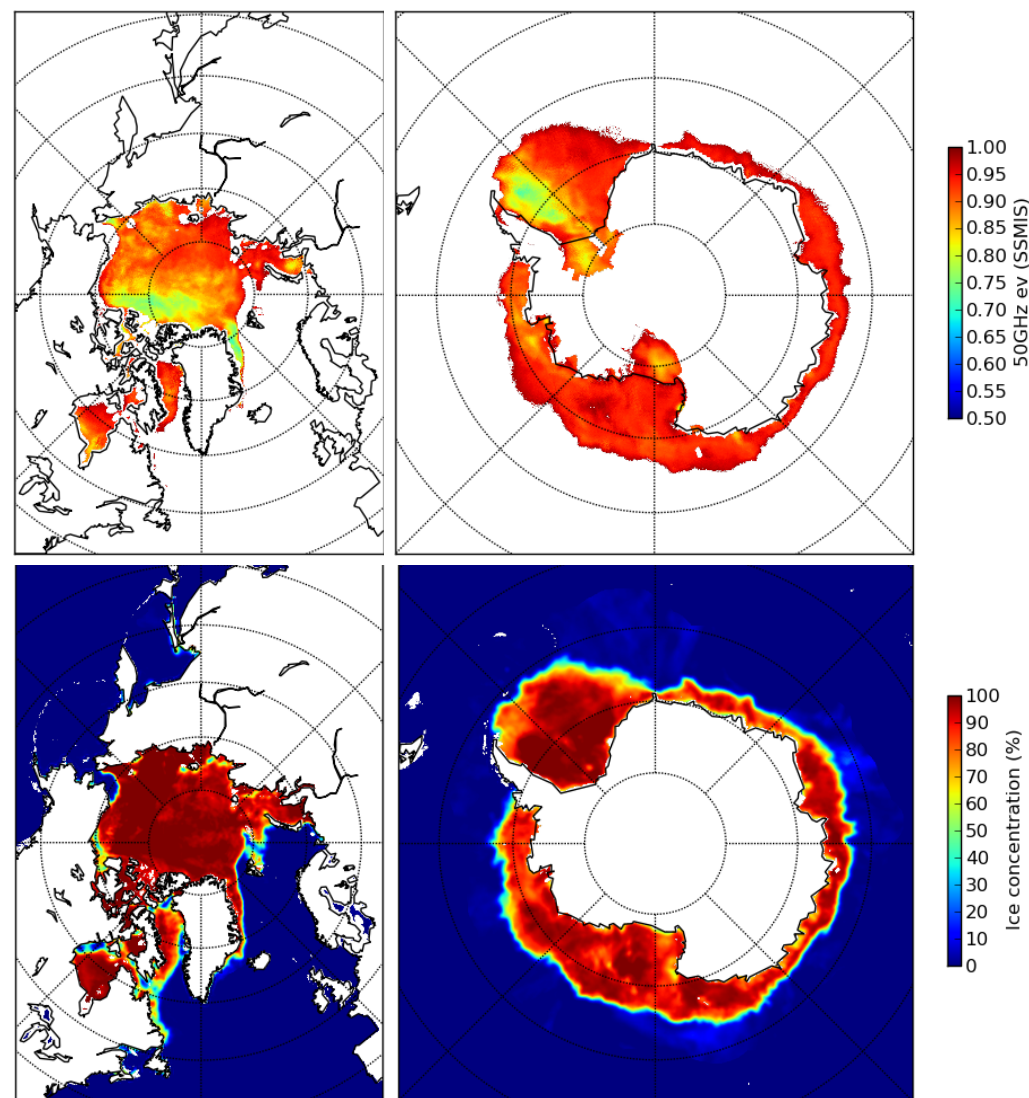OCEAN AND SEA ICE

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Sea Ice products

Operational products:

Global sea ice concentration, edge, type, emissivity and drift.

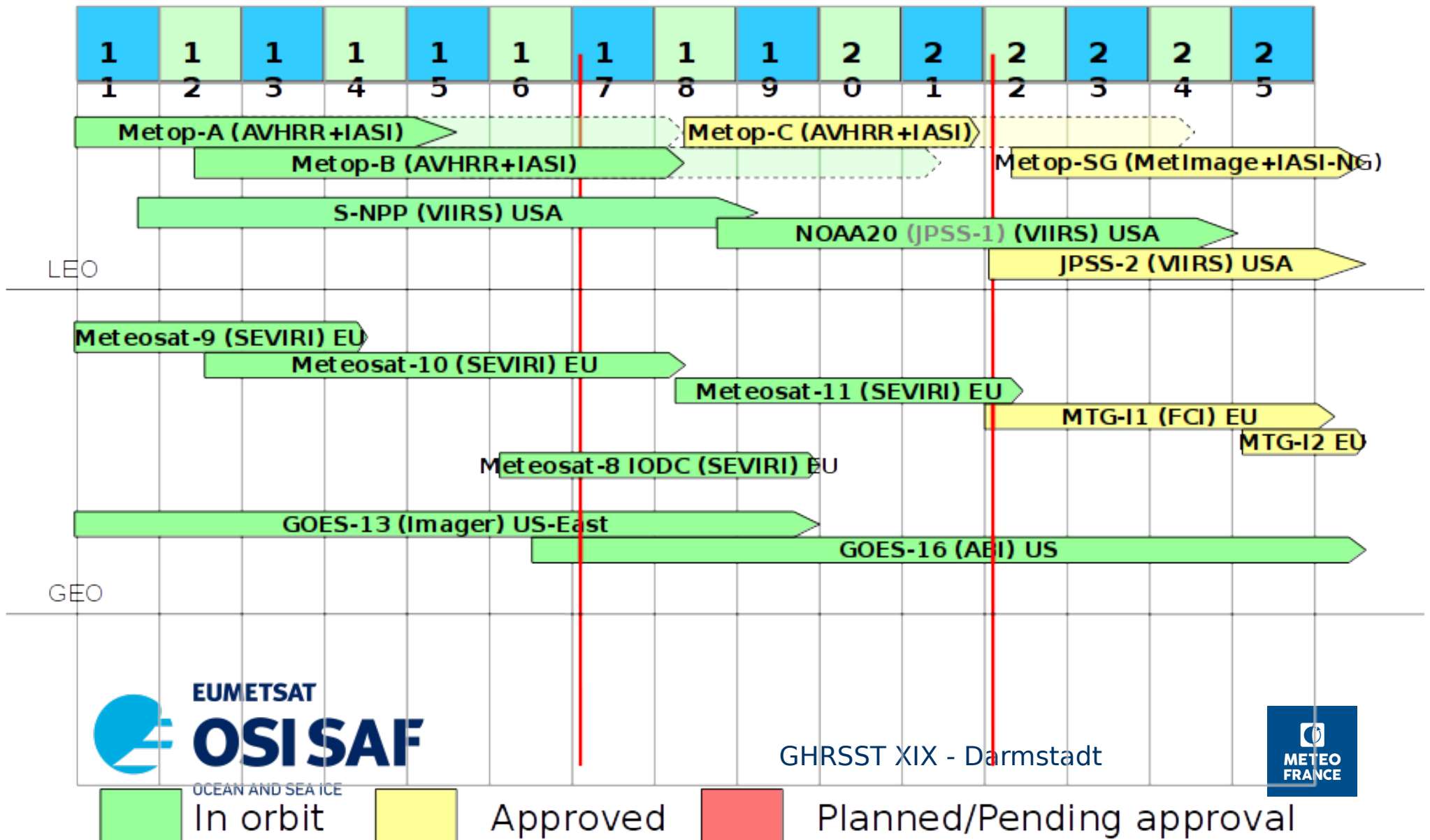Micro wave (AMSR-2, SSMIS), infrared (AVHRR), scatterometer (ASCAT) instruments

Data record:

Global sea ice concentration (>30 years)

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Satellite missions for OSI SAF NRT SST

Satellite missions for OSI SAF CDOP3 – NRT SST products

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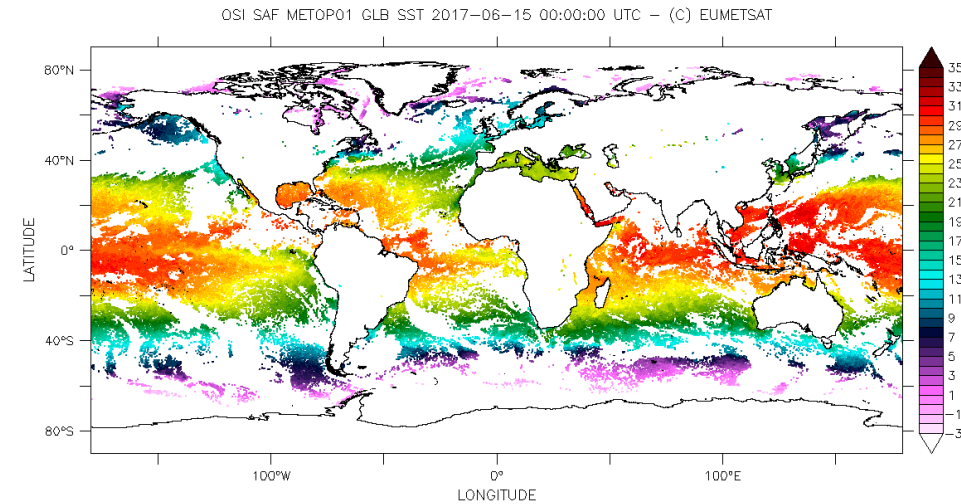
SST from Low Earth Orbiter: Global

Global SST from Metop/AVHRR

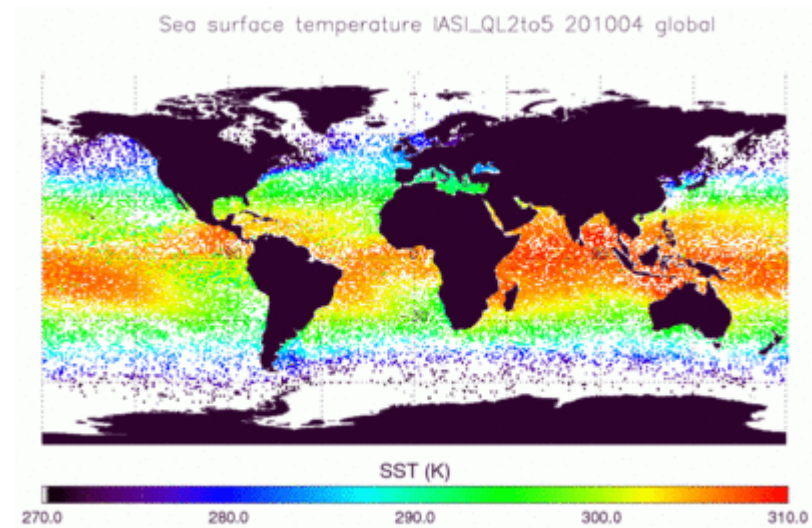L2 (granules) and L3 (12 hourly composite, 0.05°)

Method: Non linear algorithm (10.8 and 12.0 µm) + bias correction (RTTOV + NWP atmospheric profiles)

Global SST from Metop/IASI

Developed by EUMETSAT and distributed by OSI SAF

OSI SAF METOP01 GLB SST 2017-06-15 00:00:00 UTC — (C) EUMETSAT

SST (Celsius) — quality levels 3,4,5

Sea surface temperature IASI_QL2to5 201004 global

SST (K)

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SST from Low Earth Orbiter: Regional

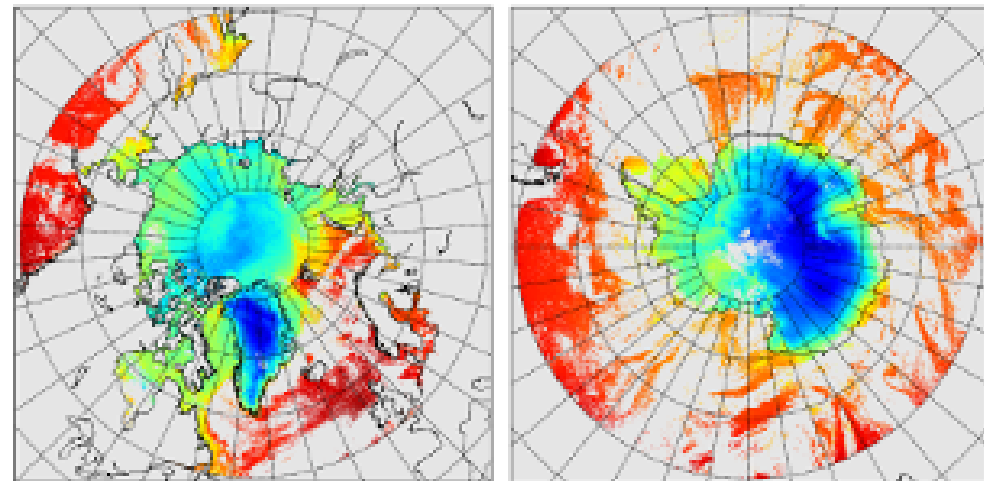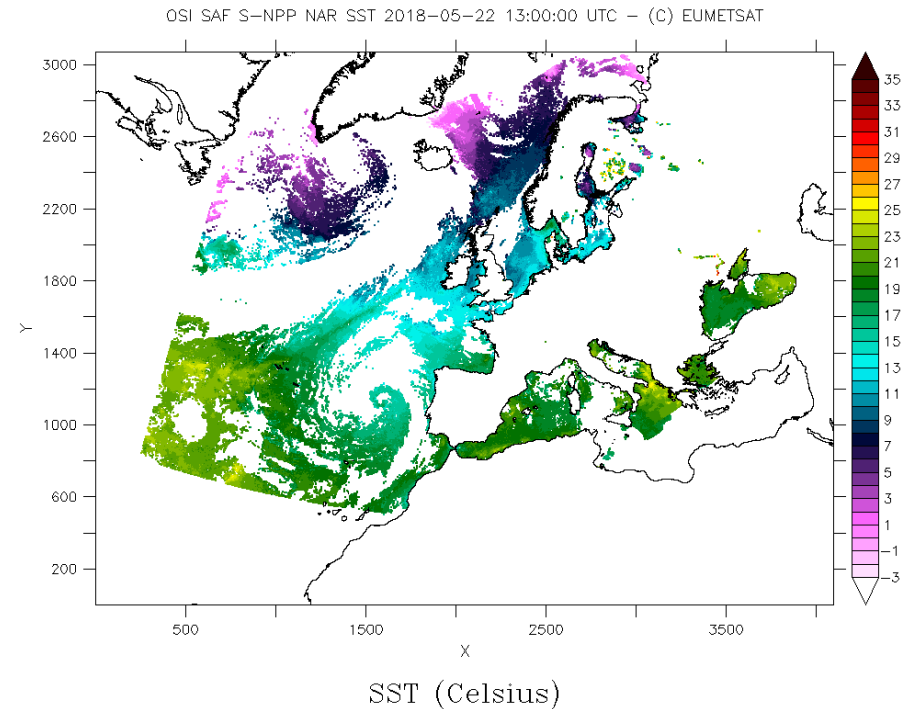**North Atlantic Regional SST from Metop/AVHRR and NPP/VIIRS**

L3 (6 hourly composite, 2km stereopolar)

Method: Non linear algorithm (10.8 and 12.0 µm)

High latitude IST, SST and MIZT from Metop/AVHRR

L2 (swath)

Method: Non linear algorithm (10.8 and 12.0 µm)

OSI SAF S−NPP NAR SST 2018−05−22 13:00:00 UTC − (C) EUMETSAT
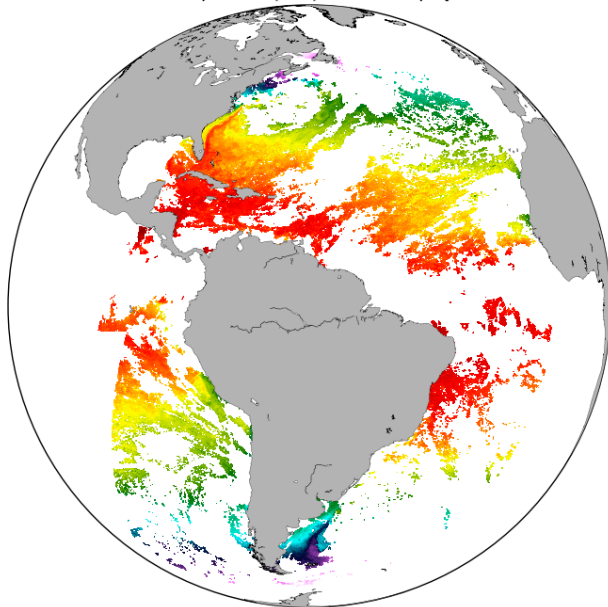
SST (Celsius)

SST from geostationary satellites
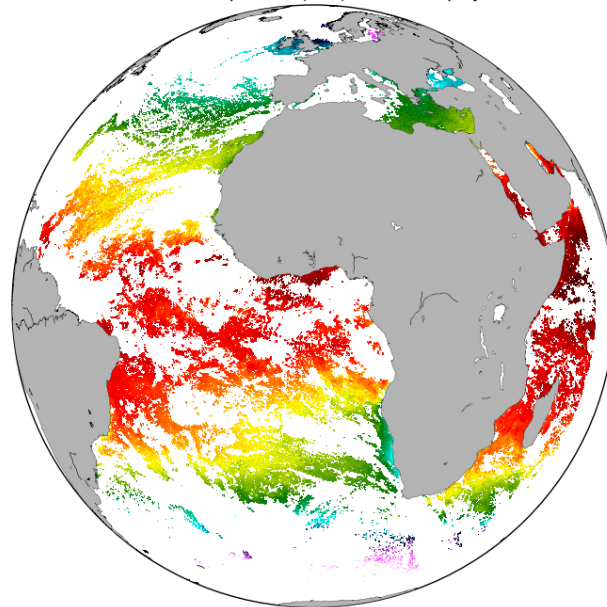
GOES-16, Meteosat-11 and Meteosat-8

L3 (12 hourly composites, 0.05°)

Method: Non linear algorithm (Meteosat: 10.8 and 12.0 µm; GOES-16: 8.4, 10.3 and 12.3 µm) + bias correction (RTTOV + NWP atmospheric profiles)
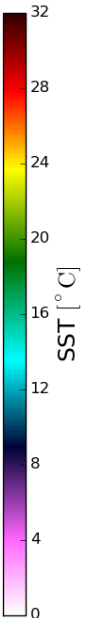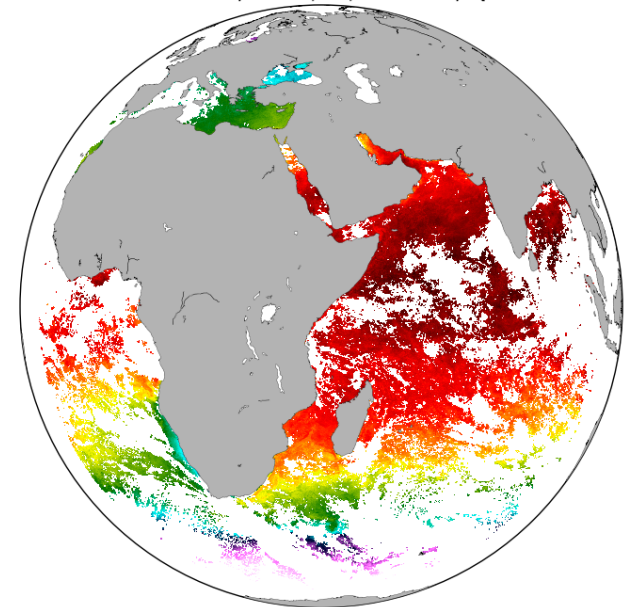

GOES-E, 2017/05/11 0h00, QL345   Meteosat10, 2017/05/11 0h00, QL345   Meteosat08, 2017/05/11 0h00, QL345
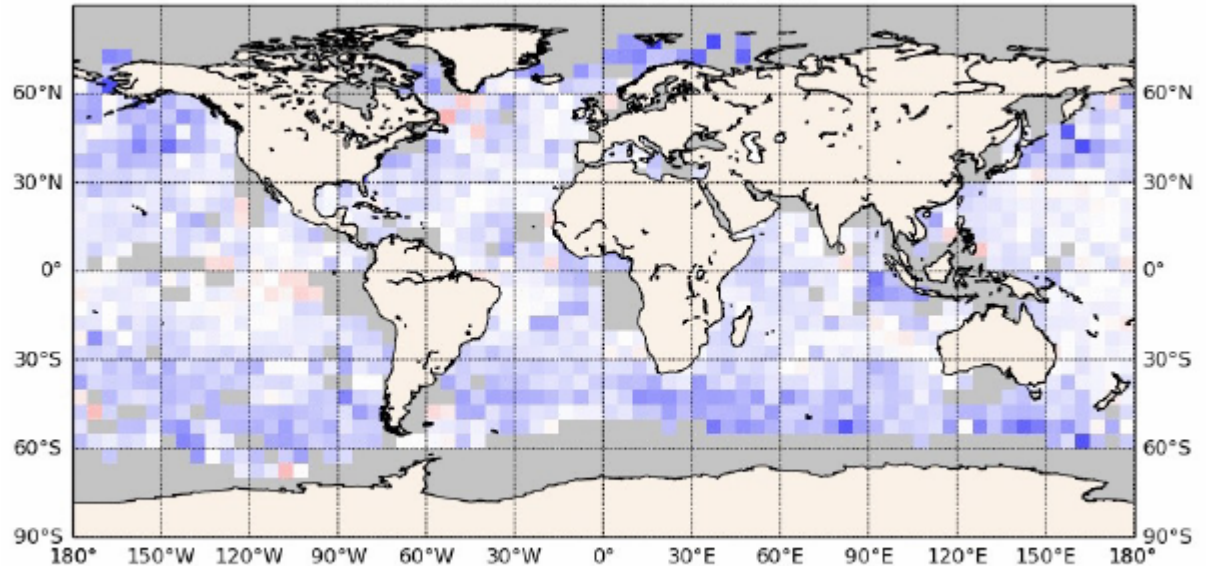
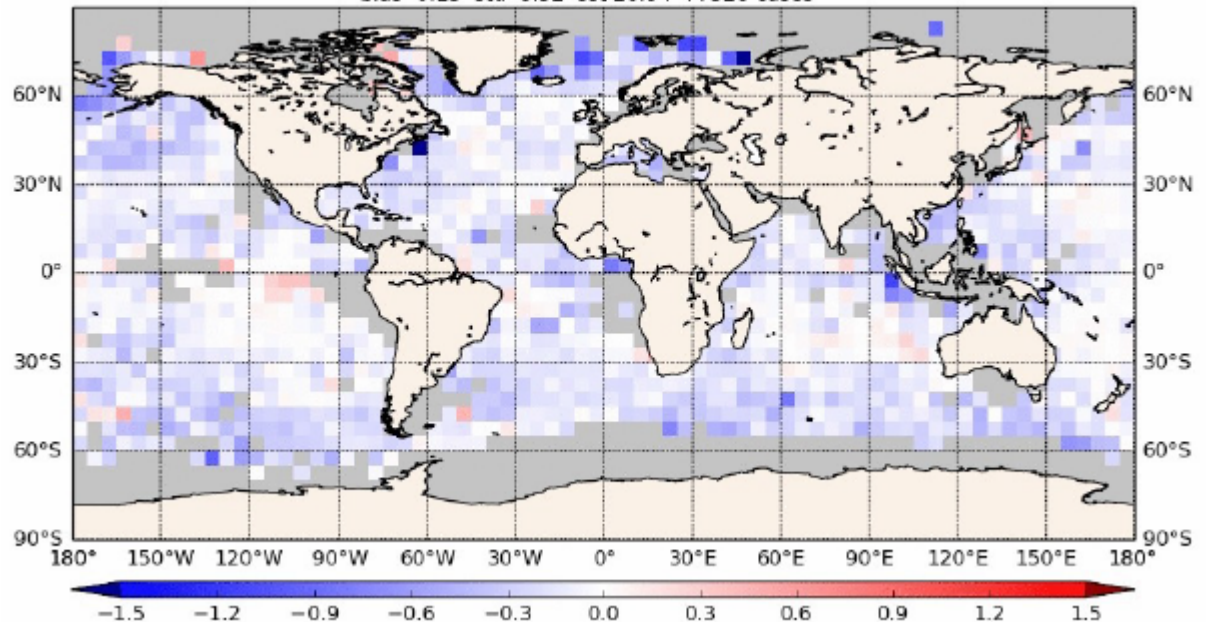# Sea surface temperature quality assessment

Example :

Metop-B/AVHRR SST

Comparison with buoys (night)

Comparison with buoys (day)

METOP01 SST diff 2016-07-01 0001 2016-12-31 2359 zso 110-180 ql 3-5 n>5 (safol)
bias -0.17 std 0.52 sst 21.82 70176 cases

METOP01 SST diff 2016-07-01 0031 2016-12-31 2336 zso 0-90 ql 3-5 n>5 (safol)
bias -0.13 std 0.52 sst 20.94 77520 cases

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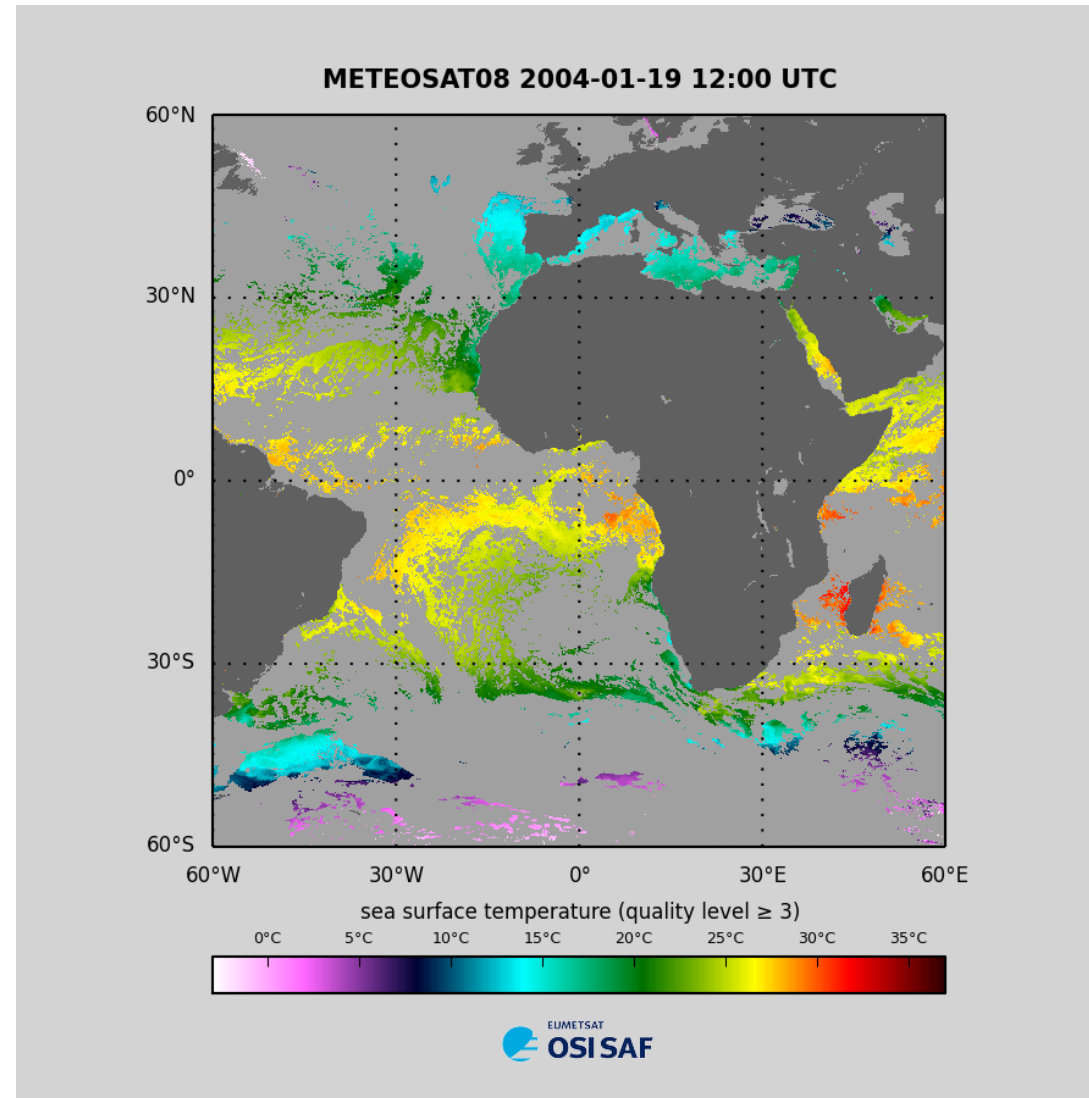
Reprocessing activities

Reprocessing

L3 (hourly composites, 0.05°)

Period of reprocessing: 2004-2012

Method: Non linear algorithm (10.8 and 12.0 µm) + bias correction (RTTOV + NWP atmospheric profiles)
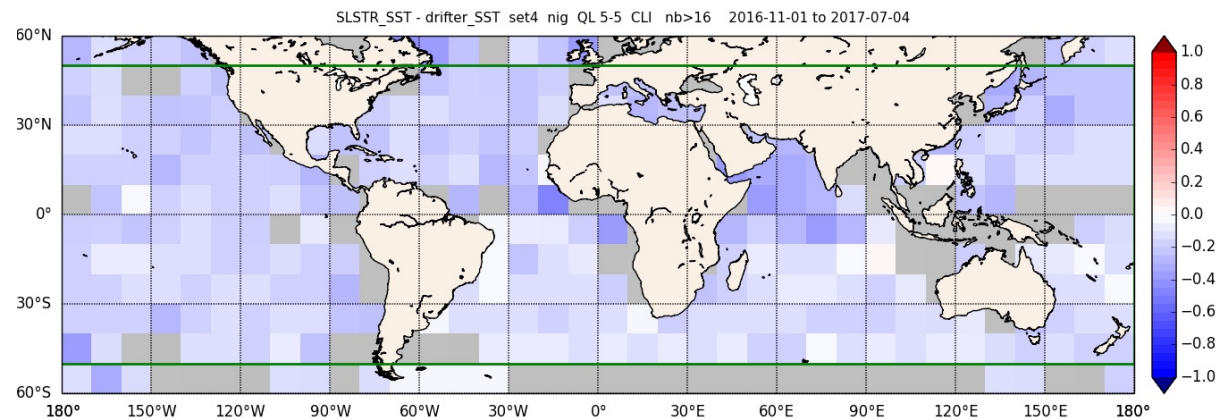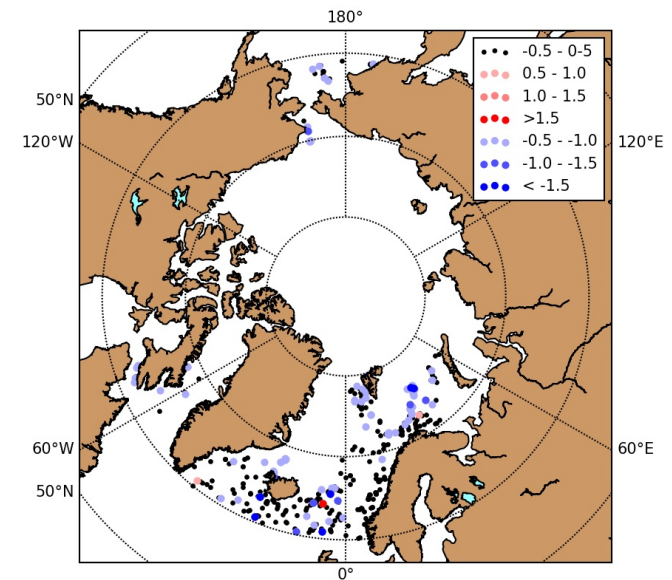
Presentation on Thursday morning

Sentinel 3/SLSTR cal val

EUMETSAT federated activity: OSI SAF and the Central Application Facility
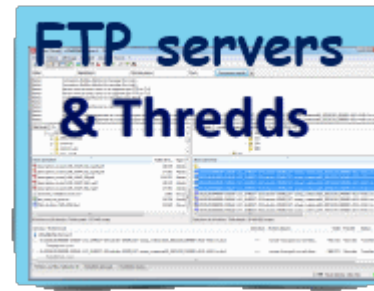
- Generation of matchup datasets (Coriolis and DMI ISAR)

- Validation low and mid latitude (Météo-France)/high latitude (MET Norway)

- Deployement and retrieval of DMI ISAR + validation in high latitudes

SLSTR_SST - drifter_SST set4 nig QL 5-5 CLI nb>16   2016-11-01 to 2017-07-04

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Access to OSI SAF data

EUMETCast — EUMETCast is a multi-service dissemination system based on standard Digital Video Broadcast (DVB) technology.

PODAAC — Physical Oceanography Distributed Active Archive Center

http://podaac.jpl.nasa.gov/

Naiad — Discovery tool

http://naiad.ifremer.fr/

FTP servers & Thredds — The OSI SAF dissemination by the three subsystem

EDC — The EUMETSAT Data Centre provides a long-term archive of data and generated products from EUMETSAT, which can be ordered online.

More information on   Access to data
http://osi-saf.eumetsat.int

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Community

- Products documentation, quicklooks, validation results available online

- Operational service messages (subscription)

- Helpdesk

- Visiting scientists program

on http://osi-saf.eumetsat.int

Future evolutions

Preparing for future satellite missions:

- – MTG/FCI

- – Metop-SG A/Metimage and IASI-NG

- – Metop-SG B/NWI and SCA