EUMETSAT and TAOS

F. Montagner

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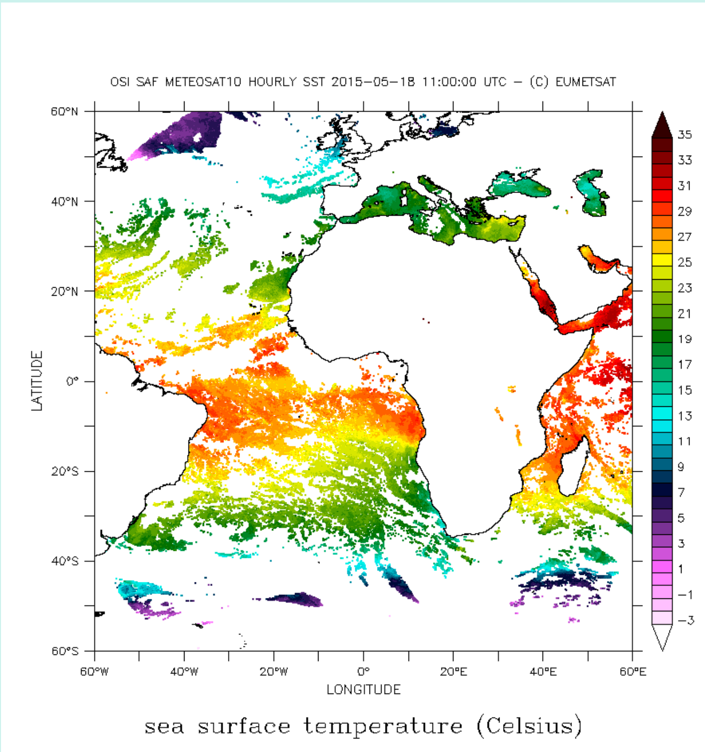
TAOS workshop

EUMETSAT and Sea Surface Temperature

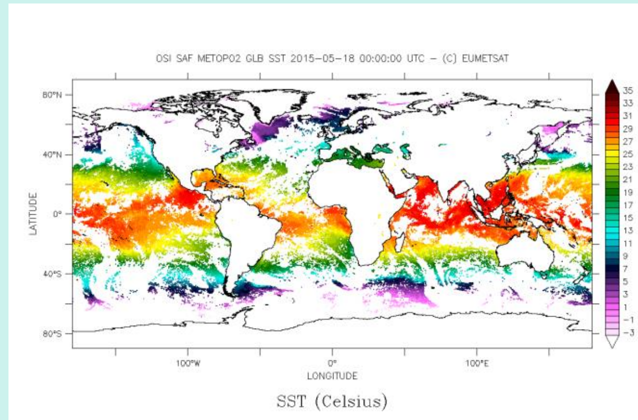
- EUMETSAT, extended by the OSI SAF, is a key provider of operational global satellite sea surface temperature from infra-red sensors
- From geostationary satellites:
  - Metosat-10 (Atlantic ocean),
  - Meteosat-8 (Indian Ocean),
  - GOES-E (Western Atlantic),
  - also with downwelling fluxes at surface
- From polar orbiting satellites:
  - Metop-B AVHRR and IASI
  - Copernicus Sentinel-3 SLSTR

EUMETSAT OSI SAF SST products

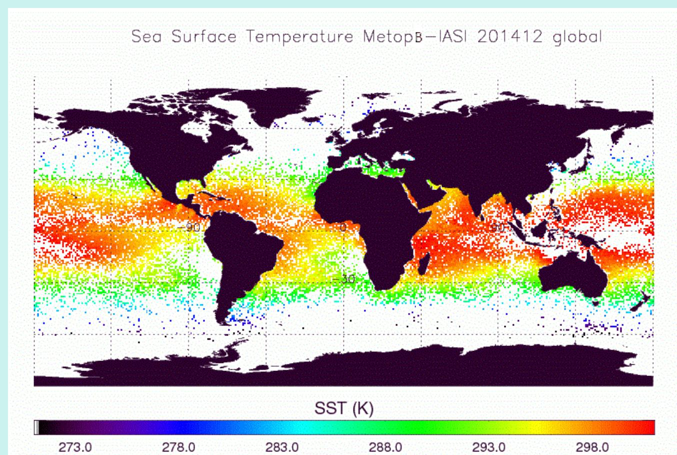
MSG SEVIRI (OSI-206) and GOES-E (OSI-207)



Metop-B AVHRR (OSI-201/202/203/204)



Metop-B IASI (OSI-208)



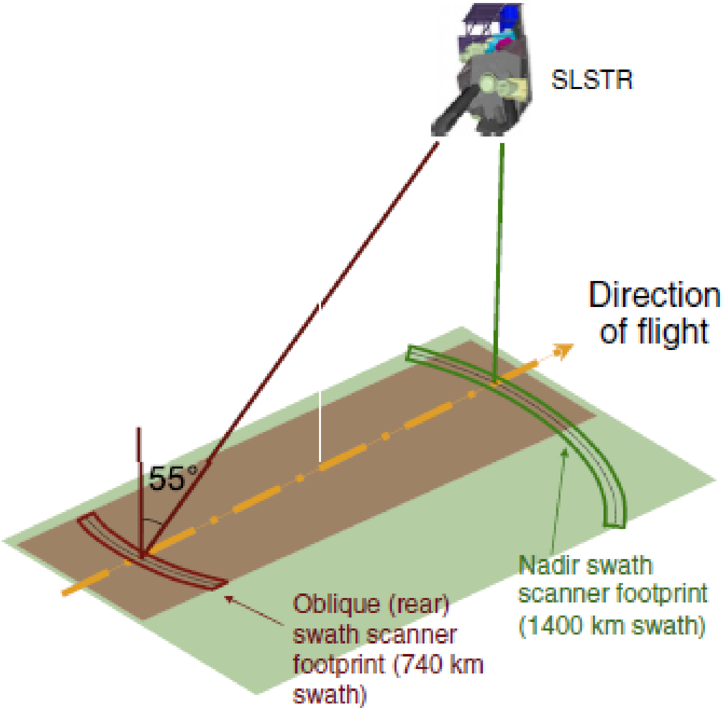
http://www.osi-saf.org

Parameter Domain	Product	Status	Overview
Wind	Metop-A ASCAT 25 km Wind		
	Metop-B ASCAT 25 km Wind		
	Metop-A ASCAT Coastal Wind		
	Metop-B ASCAT Coastal Wind		
	RapidScat 25km Wind		
	RapidScat 50km Wind		
SST	NHL SSIST		
	GLB SST		
	NAR SST		
	MGR SST		
	IASI SST		
	METEOSAT SST		
	GOES-E SST		
Radiative Fluxes	AHL DLI		
	AHL SSI		
	METEOSAT DLI		
	METEOSAT SSI		
	GOES-E DLI		
	GOES-E SSI		
Sea Ice	Global Sea Ice Concentration		
	Global Sea Ice Edge		
	Global Sea Ice Type		
	Low Resolution Sea Ice Drift		
	Medium Resolution Sea Ice Drift		
	Global Sea Ice Emissivity		

Ope. Pre-ope. Demo.
Degraded Outage

OSI SAF EUMETSAT

Copernicus Sentinel-3 SLSTR



Sea and Land Surface Temperature Radiometer

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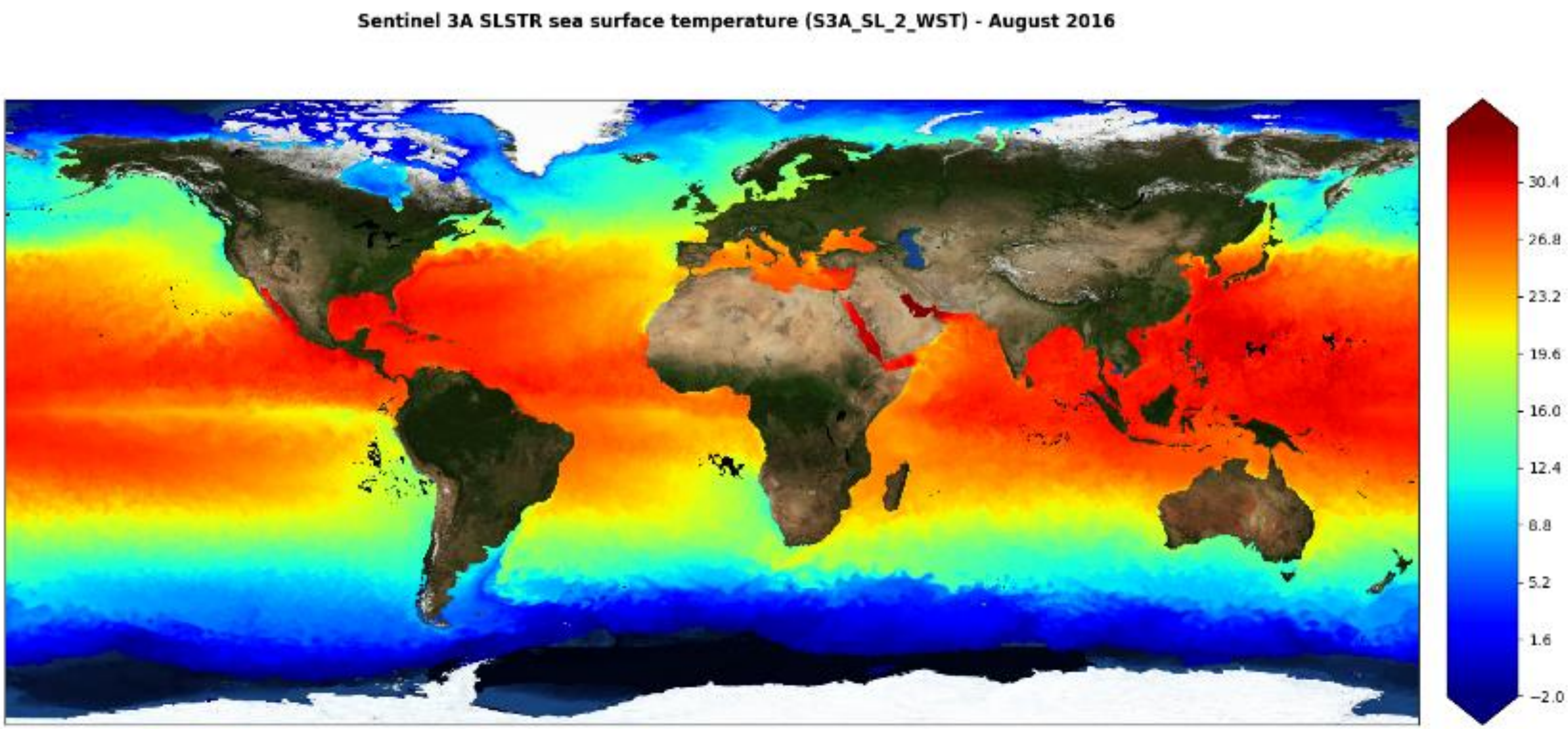
- S3A launched 16th February 2016.
- SLSTR L2 data to S3VT 21/6/16.
- Operational L2 SST 5/7/17.
- Bayesian cloud implementation 01/18.

Band characteristics of the Sentinel-3 Sea and Land Surface Temperature Radiometer (SLSTR). F1 and F2 are dedicated active fire monitoring bands.

SLSTR band	L centre [μm]	ΔL [μm]	SNR [–]/ NeΔT [mK]	SSD [km]	Function
S1	0.555	0.02	20	0.5	Cloud screening, vegetation monitoring, aerosol
S2	0.659	0.02	20	0.5	NDVI, vegetation monitoring, aerosol
S-3	0.865	0.02	20	0.5	NDVI, cloud flagging, Pixel co-registration
S4	1.375	0.015	20	0.5	Cirrus detection over land
S5	1.61	0.06	20	0.5	Cloud clearing, ice and snow, vegetation monitoring,
S6	2.25	0.05	20	0.5	Vegetation state and cloud clearing
S7	3.74	0.38	80 mK	1.0	SST, LST, Active Fire
S8	10.95	0.9	50 mK	1.0	SST, LST, active fire
S9	12	1.0	50 mK	1.0	SST, LST
F1	3.74	0.38	<1 K	1.0	Active fire
F2	10.95	0.9	<0.5 K	1.0	Active fire

SLSTR Sea Surface Temperature

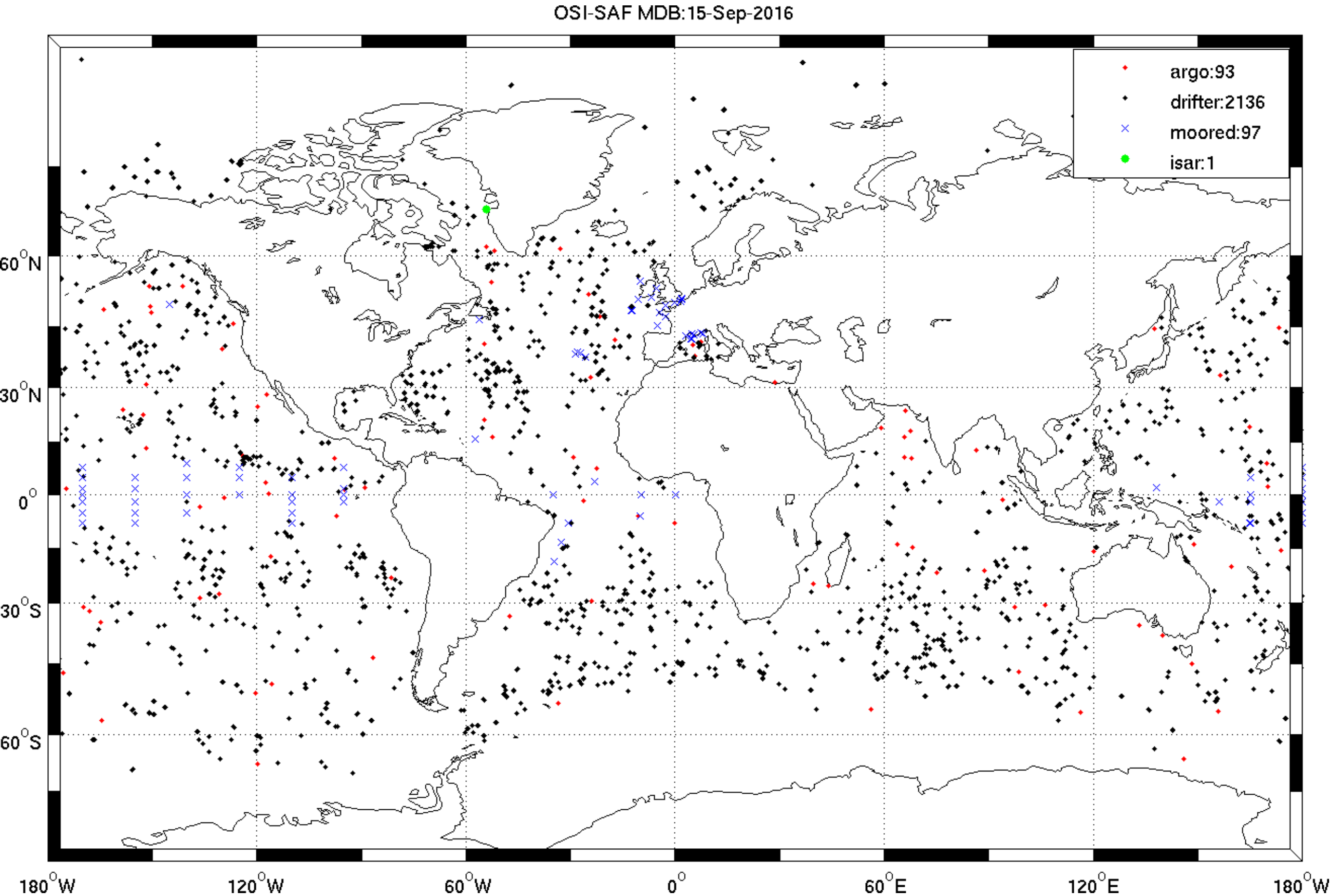


In situ measurements in support of satellite SST

- Match-ups with *in situ* measurements are essential for the validation, the quality control and the improvement of satellite SST products, throughout the satellite mission
- Fiducial Reference Measurements (FRMs) are crucial for the new generation of satellite sensors
  - FRMs have documented SI traceability e.g. via round-robin intercalibration of instruments using metrology standards;
  - FRMs are independent from the satellite geophysical retrieval process;
  - An uncertainty budget for all FRM instruments and derived measurements is available and maintained;
  - FRM protocols and community-wide management practices (measurement, processing, archive, documents etc.) are defined, published openly and adhered to by FRM instrument deployments;
  - FRMs are openly and freely available for independent scrutiny;
  - FRMs should be available over the entire end-to-end duration of a satellite mission.
- Accurate positioning and time stamping of buoy measurements are essential

In situ matchup databases

See talk by J-F Piolle



- Routine collocation of in situ and satellite data.
- Drifters, Moored buoys, Argo, Ship Borne radiometers.
- Use of Coriolis.
- Use of FRM
- Coordination with international teams.

The EUMETSAT Network of Satellite Application Facilities

OSI SAF Ocean and Sea Ice

felyx

Conclusion

EUMETSAT Areas of Specific Interest for TAOS:

- Optimising the quality of satellite products
- Optimising the quality and availability of *in situ* reference for match-ups
  - Fiducial Reference Measurements
- Gap analysis on passive microwave satellite observations