

Future ESA Missions for SST: Providing Enhanced Continuity for Copernicus (summary)

Paolo Cipollini, Craig Donlon, Wilfried Glastre,
Benjamin Koetz, Armin Löscher
European Space Agency

Enhanced continuity for SST



The legacy of Sentinel-3 SLSTR for operational and climate-quality SST is being continued and enhanced:

- S3-NGO ASLSTR: 500 m resolution
- LSTM: high resolution, for coastal applications
- CIMR: all-weather SST from passive microwave



SST Mission in the Copernicus Context



CURRENT GENERATION SENTINELS

Sentinel-1 A + B
C-Band Radar

Sentinel-1 C + D
C-Band Radar

Sentinel-2 A + B
High Res Optical

Sentinel-2 C + D
High Res Optical

Sentinel-3 A + B
MR Optical + Altimeter

Sentinel-3 C + D
MR Optical + Altimeter

Sentinel-4 A
Atm. Chemistry (GEO)

Sentinel-4 B
Atm. Chemistry (GEO)

Sentinel-5P
Atm. Chemistry (LEO)

Sentinel-5
Atm. Chemistry (LEO)

Sentinel-6 A
Altimeter

Sentinel-6 B
Altimeter

NEXT GENERATION SENTINELS

Sentinel-1 NG
C-Band Radar

Sentinel-2 NG
High Res Optical

Sentinel-3 NG Topogr.
Altimeter

Sentinel-3 NG Optical
MR Optical

500-m SST



COPERNICUS EXPANSION

ROSE-L

L-Band Radar for Arctic and Cryosphere Monitoring, Land and Emergency Mapping, Ground Motion, Soil Moisture

CO2M

Carbon Dioxide Monitoring

CRISTAL

Polar Ice & Snow Topogr Altim.

CHIME

Hyperspectral Imaging

LSTM

Land Surface Temperature

CIMR

Imaging Microwave Radiometer

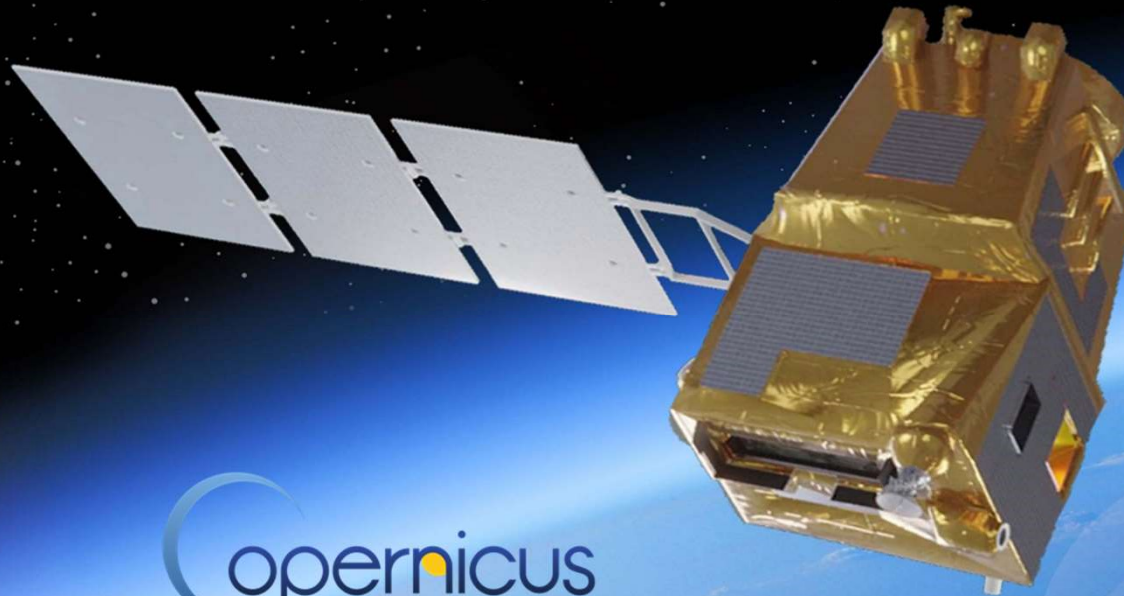


LSTM



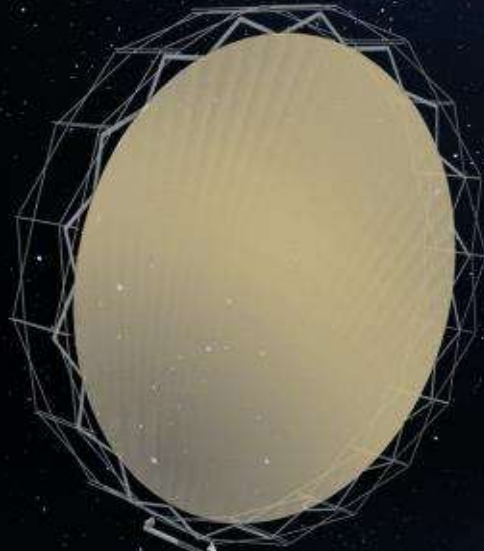
High spatio-temporal resolution TIR observations over land and coastal regions

- **SSD 50 m**
- **swath 687 km**
- **5 TIR, 4 VNIR, 2 SWIR**
- **NEdT <0.15 K**
- **ARA <0.5 K**



Copernicus
Europe's eyes on Earth





CIMR

COPERNICUS IMAGING
MICROWAVE RADIOMETER

Multichannel:
1.4 GHz (L)
6.9 GHz (C)
10.6 GHz (X)
18.7 GHz (K)
36.5 GHz (Ka)

SST with res ≤ 15 km and total standard uncertainty ≤ 0.3 K
Sub-daily coverage of polar seas

