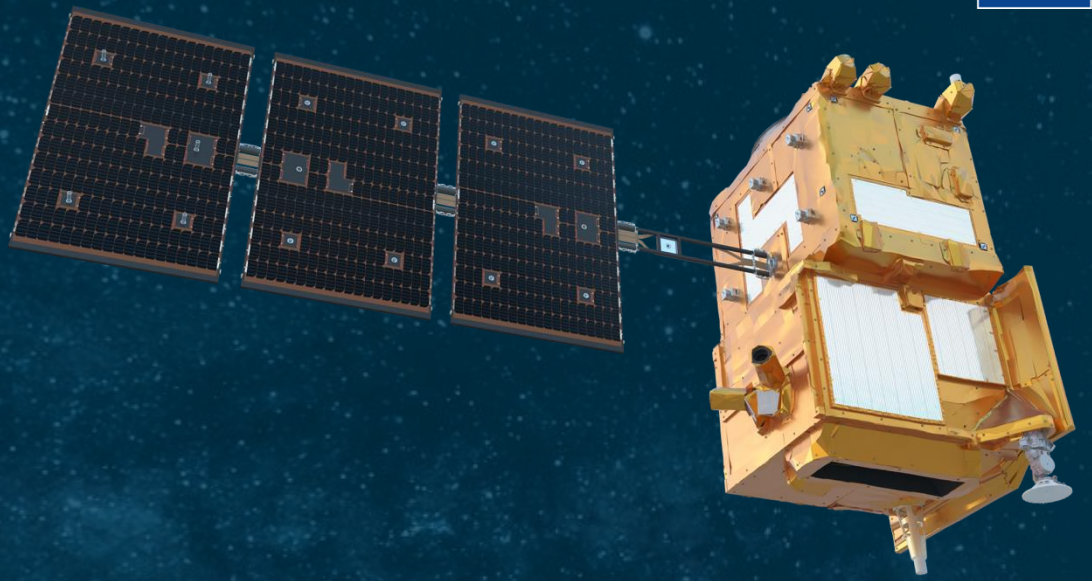
PROGRAMME OF THE EUROPEAN UNION

co-funded with



LSTM Mission Overview

EU | ESA

lstm

COPERNICUS

LSTM Mission Manager

07 September 2026

ESA UNCLASSIFIED – Releasable to the Public

PROGRAMME OF THE EUROPEAN UNION

esa

Food Security and Water Management

Monitoring Land and Natural Resources

CHIME

ROSE-L

LSTM

CIMR

Combatting Climate Change

CRISTAL

Safeguarding the Arctic

CO2M

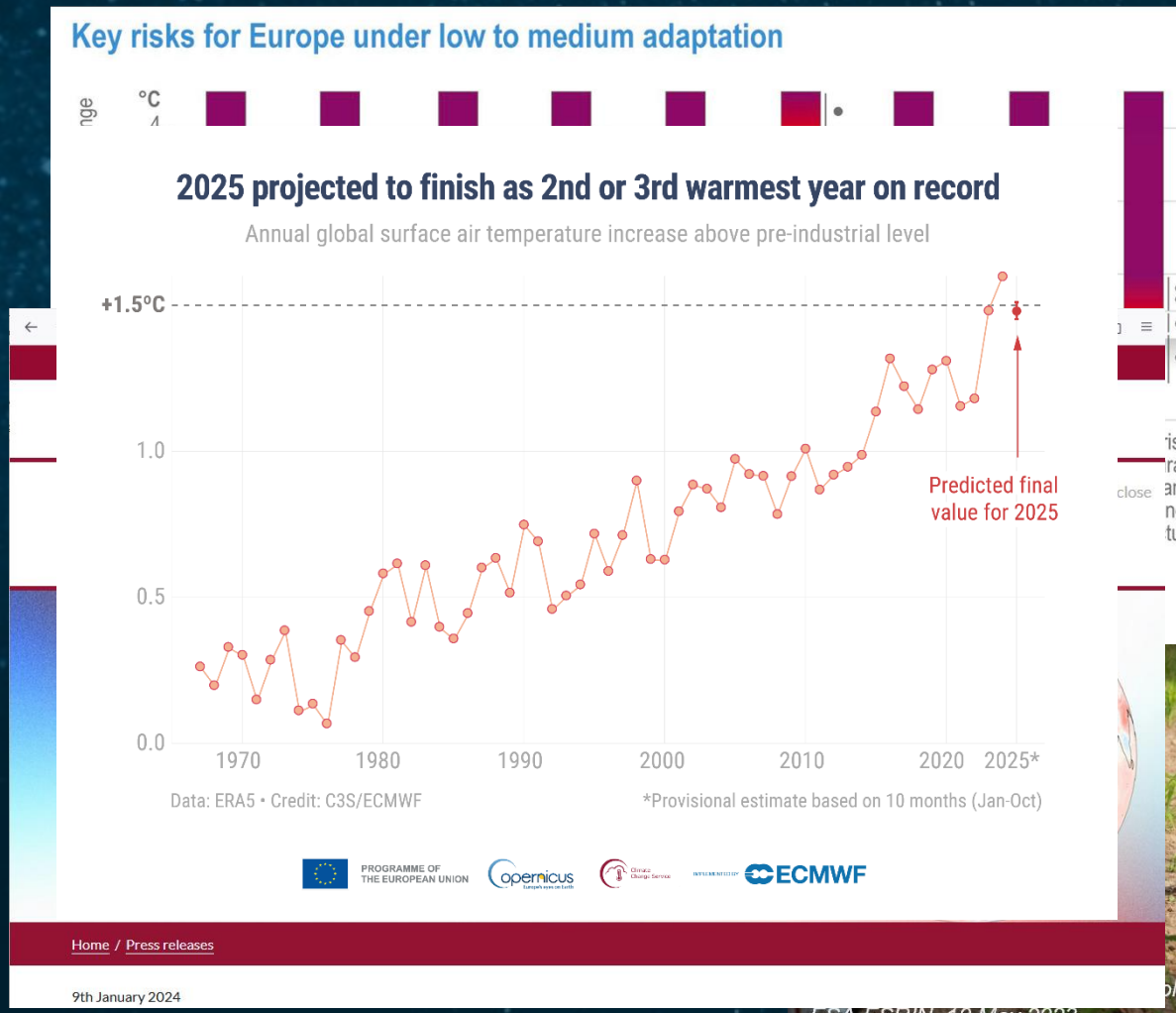
Strengthening Copernicus Space with the Sentinel Expansion Mission observations

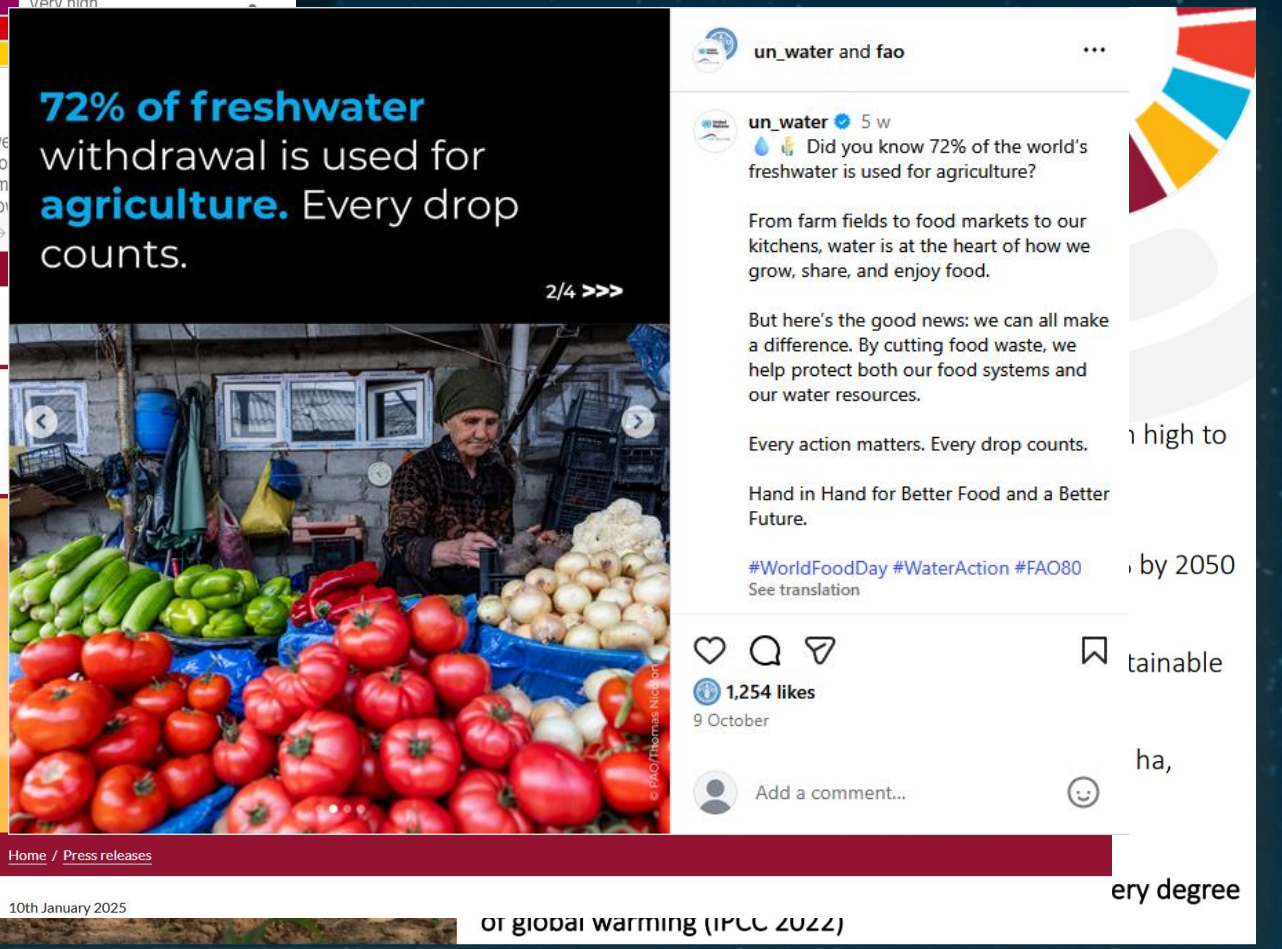
→ THE EUROPEAN SPACE AGENCY

Why High-Resolution thermal Earth Observation matters?

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opernicus Europe's eyes on Earth co-funded with esa





ESA-ESRIN, 10 May 2023

of global warming (IPCC 2022)

Water and agriculture in a changing climate

LSTM Mission Objectives

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Copernicus Europe's eyes on Earth co-funded with esa



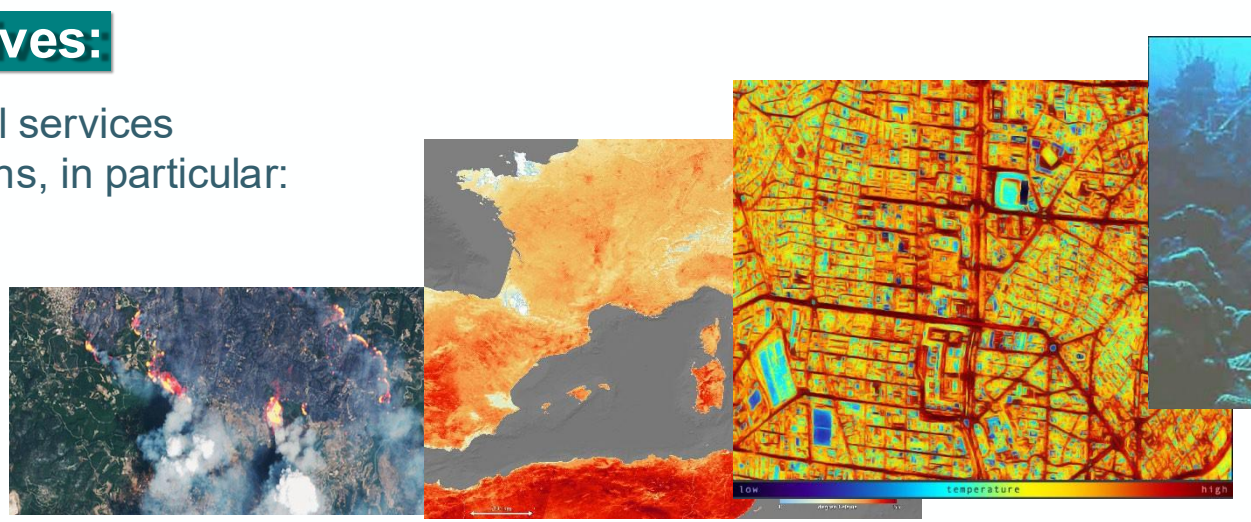
Primary objective:

To enable monitoring **evapotranspiration (ET)** rate at **European field scale** by capturing the variability **of Land Surface Temperature (LST)** (and hence ET) allowing **more robust estimates of field-scale water productivity**.

Complementary objectives:

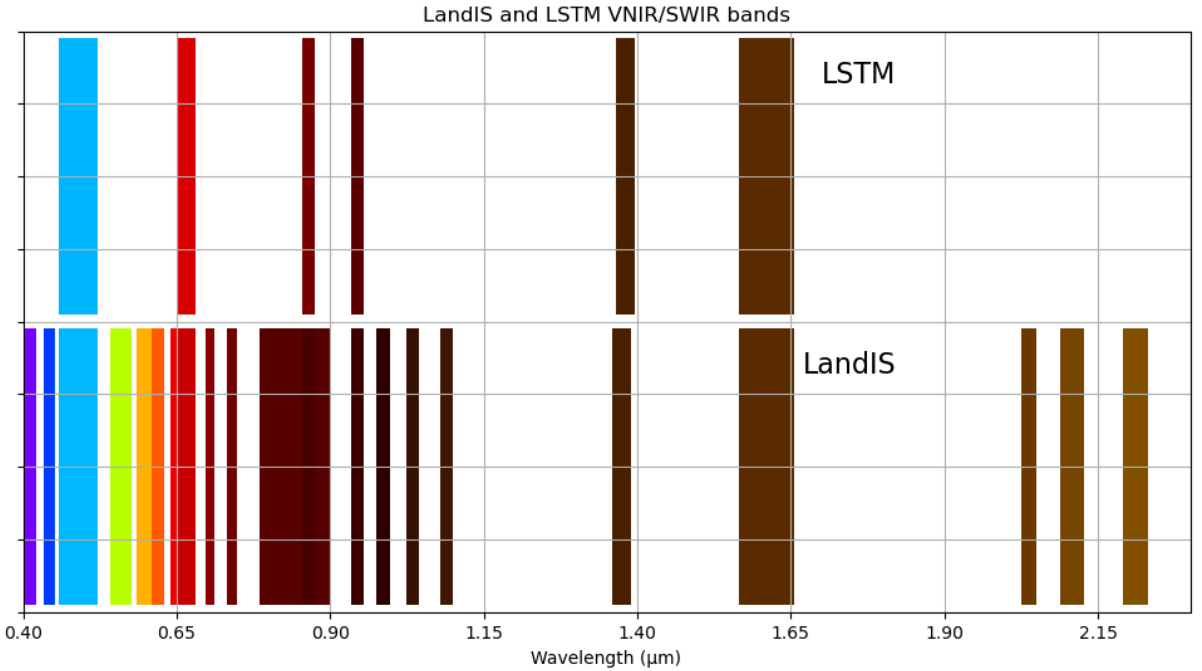
To support a range of additional services benefitting from TIR observations, in particular:

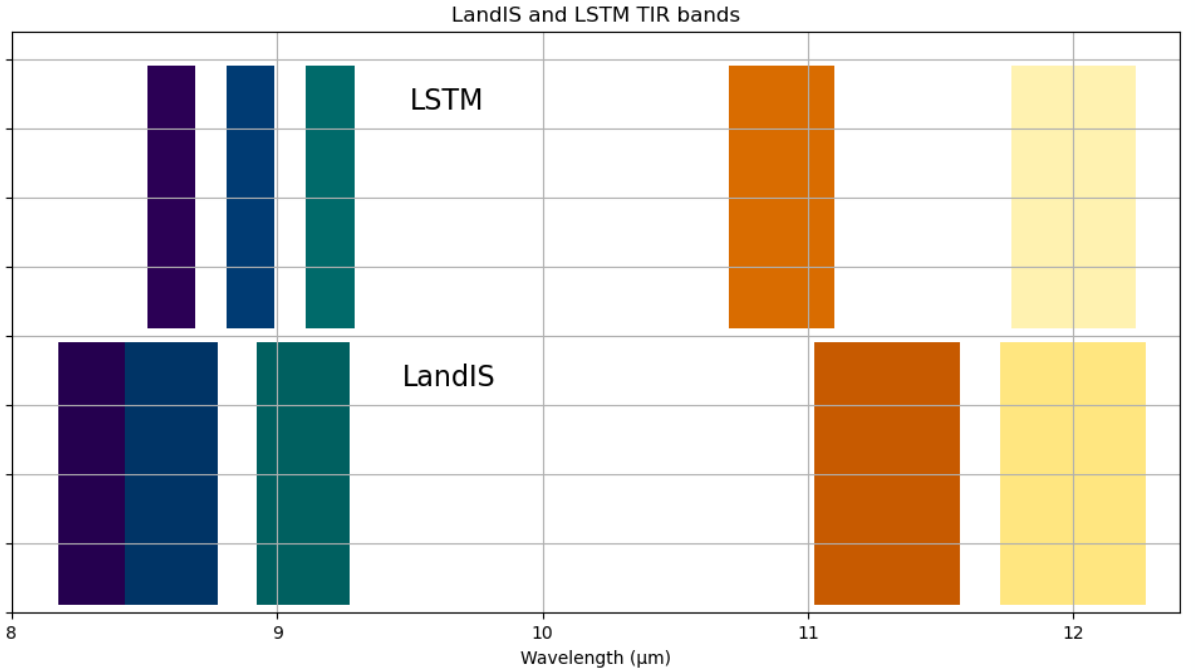
- Urban heat islands
- Coastal zone management
- High-Temperature Events
- Soil composition
- Drought monitoring
- Cryosphere monitoring





LSTM Instrument





LSTM instrument:

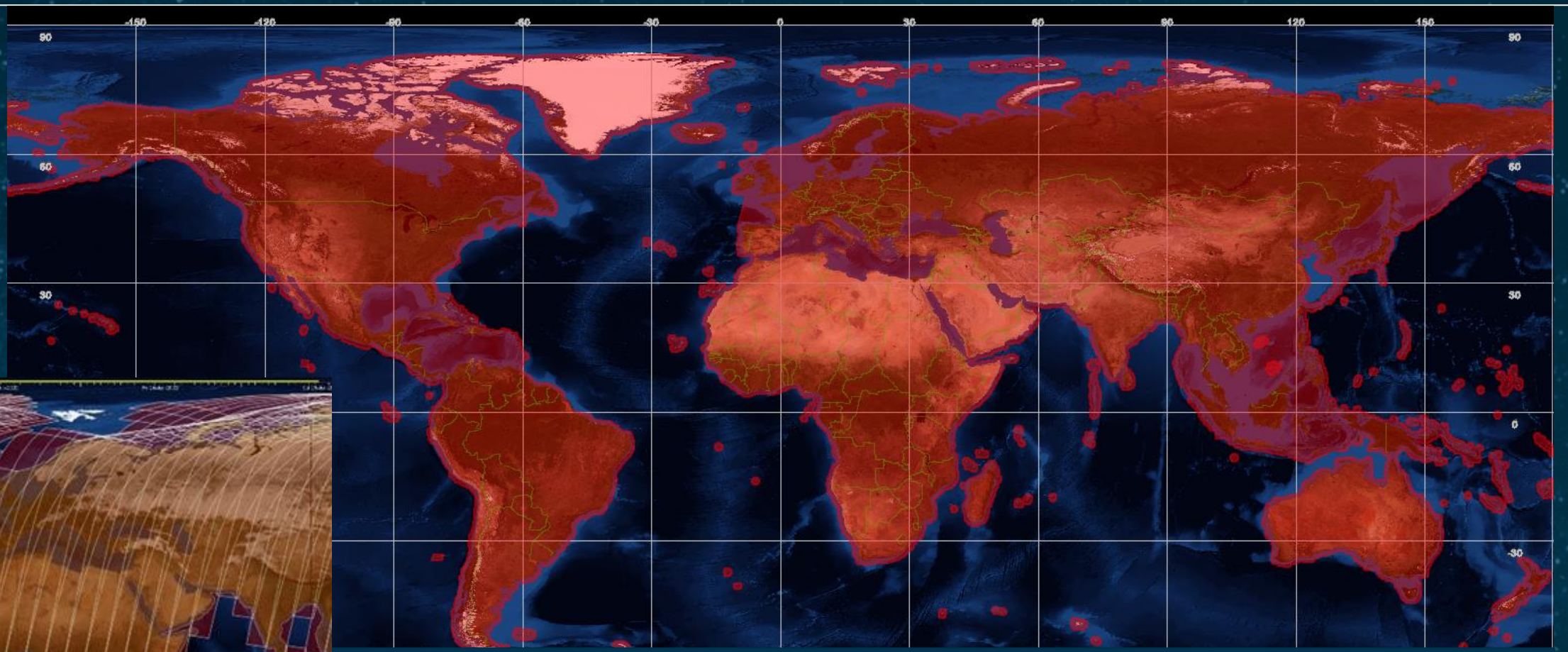
- One aperture 3 optical paths
- On board calibration:
  - Deep space port
  - Black body
- NeDT < 0.15k @ 300K
- ARA 0.5 K

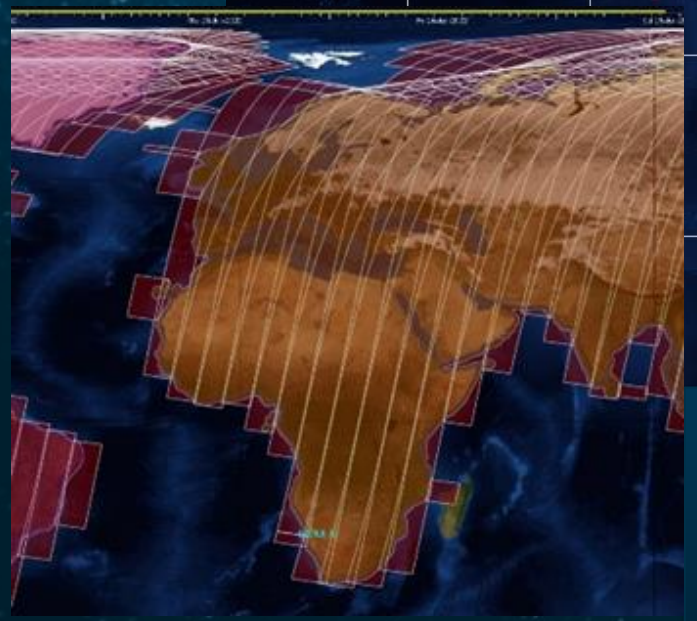
- 2 satellites
- MLST 12:30 at descending node
- Swath > 670 km
- Revisit time 2 days
- SSD 50 m (37 at nadir)
- Geolocation accuracy, 25 m (with GCPs)

VNIR0	0.490 µm
VNIR1	0.665 µm
VNIR2	0.865 µm
VNIR3	0.945 µm
SWIR1	1.380 µm
SWIR2	1.610 µm

TIR1	8.600 µm
TIR2	8.900 µm
TIR3	9.200 µm
TIR4	10.900 µm
TIR5	12.000 µm

Acquisition Mask





Systematic observations over

- land and inland water areas between -56° and +84° latitude
- major islands and all European islands
- coastal waters covered within 100 km from the shoreline
- closed seas

Thank you for your attention

