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Copernicus Sentinel-3 Sea (and sea-ice) Surface Temperature (ST): product status, evolutions and projects

INTRODUCTION

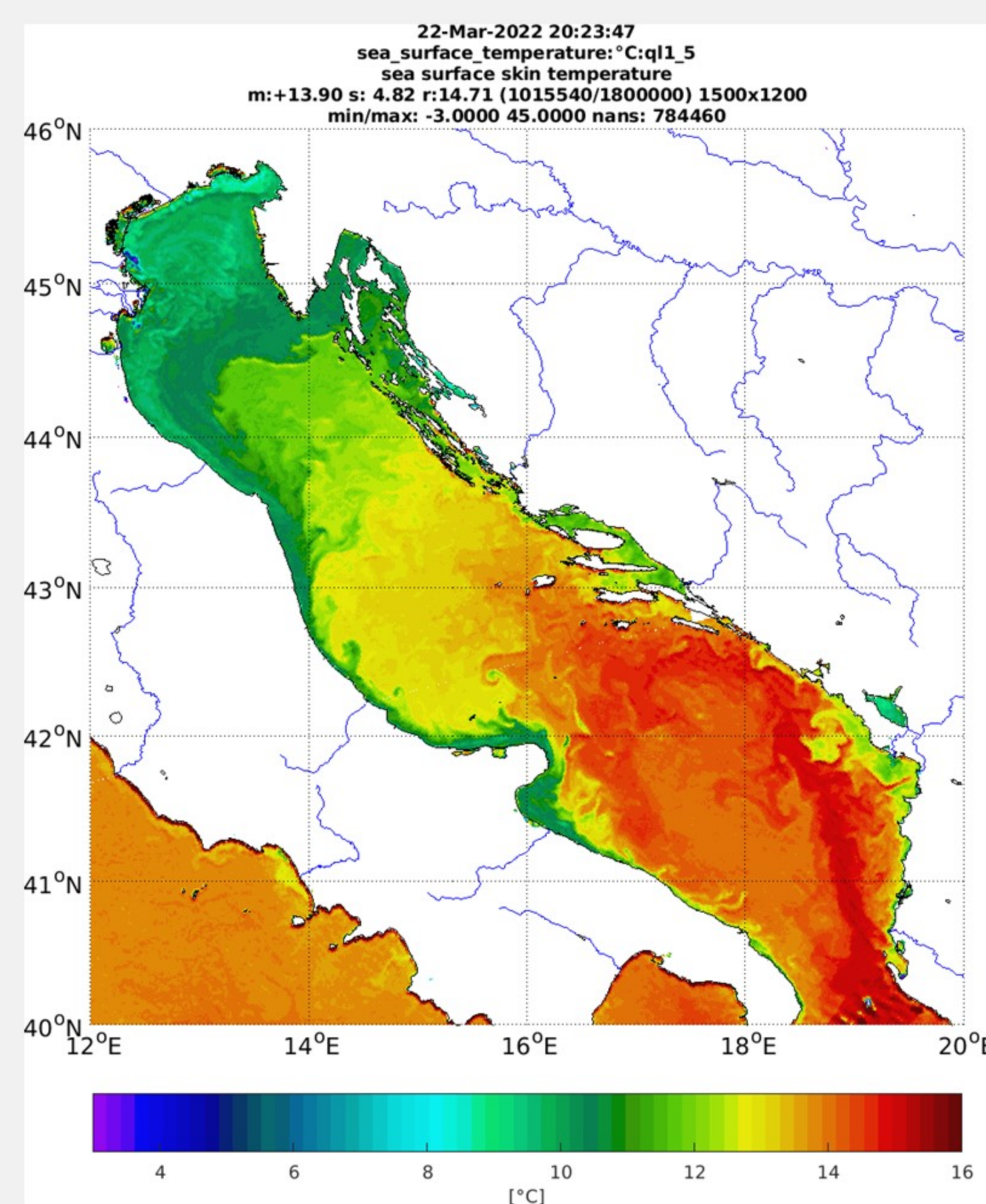
Sea Surface Temperature (SST) is a fundamental physical variable for understanding, quantifying and predicting complex interactions between the ocean and atmosphere.

Watch video here:

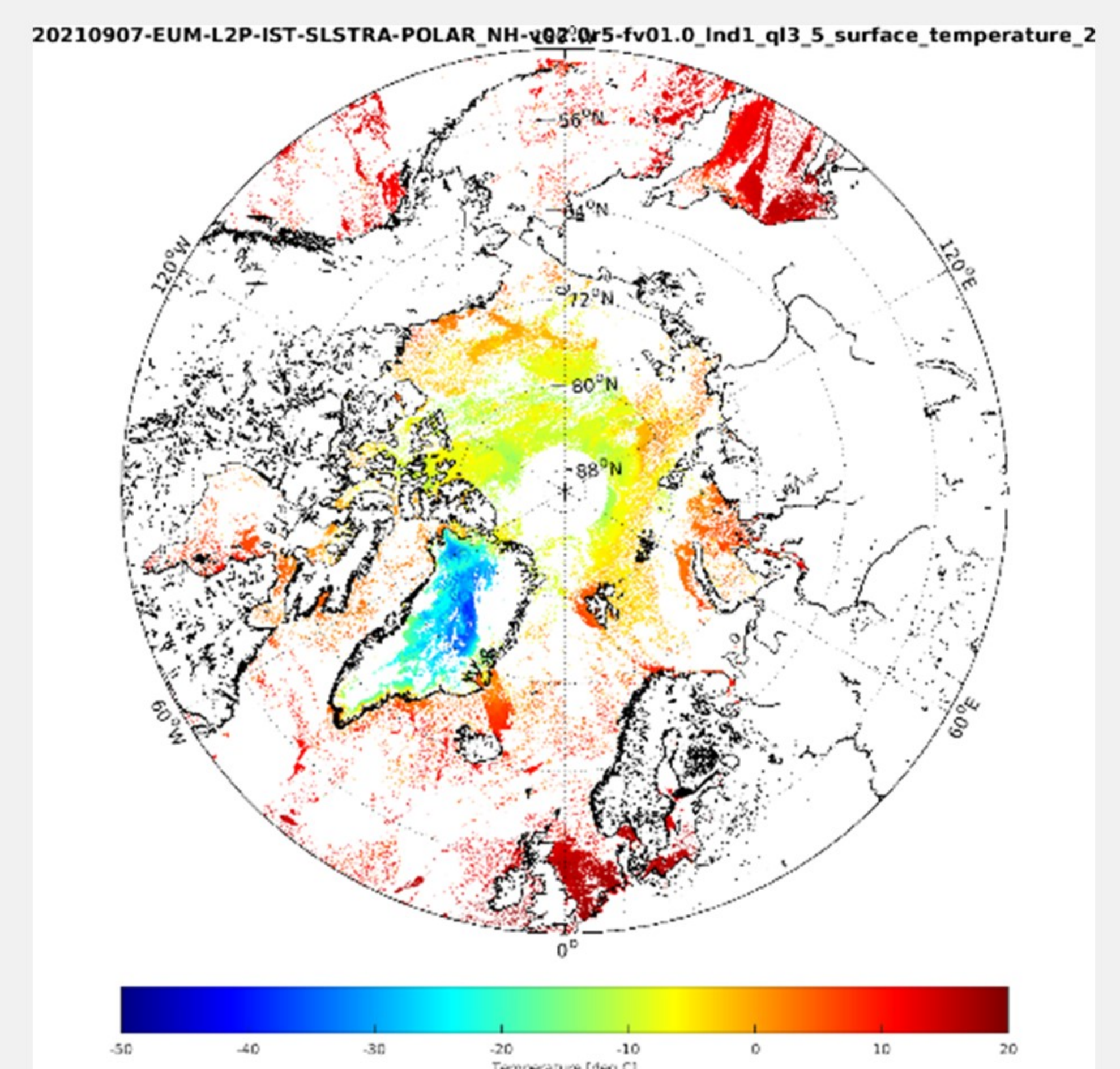
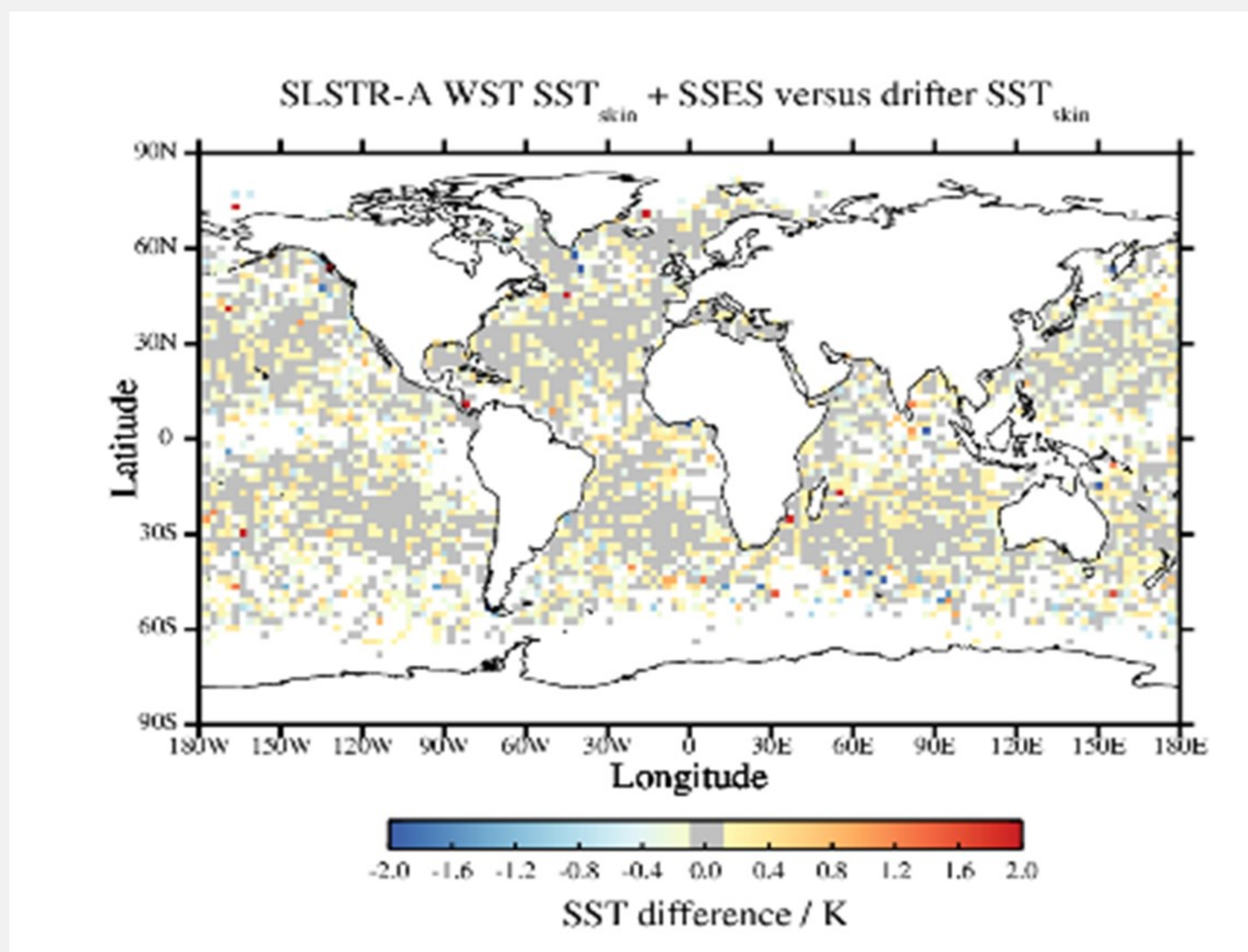


SLSTR Sea Surface Temperature

Operational Sentinel-3 SST products in GHRSSST specification, have been available from EUMETSAT since 2017, with excellent product quality. SLSTR dual-view SSTs are recommended for reference purposes [1, 2].

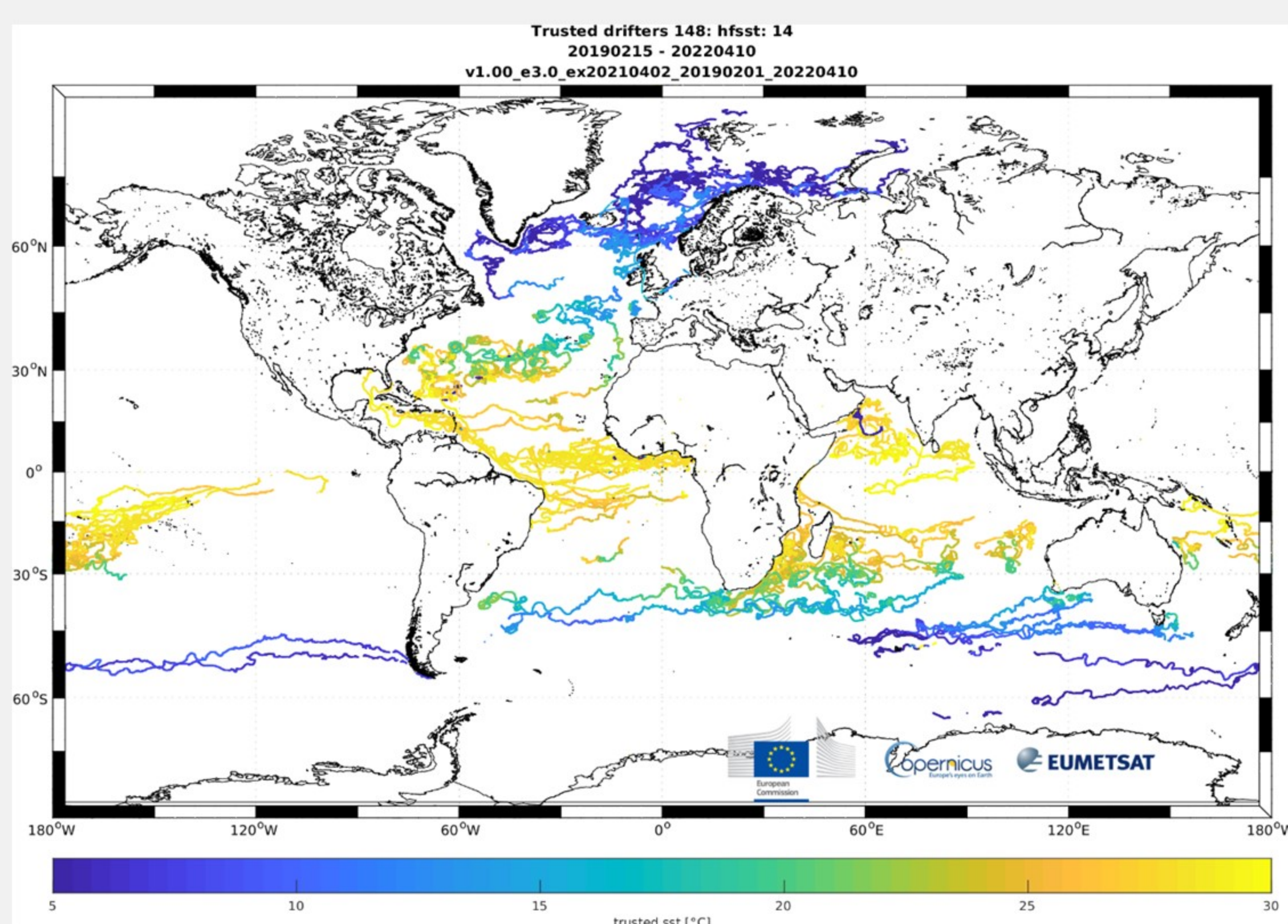


Sentinel-3A D3 SST night-time:



Fiducial Reference Measurements for SST validation

150 HRSST-2 / TRUSTED buoys for SST deployed [4]. Matchup dataset (MDB) available on request.



Watch video:



Project extended to 2025 for 75 further buoys:

- Evolving metadata & Quality Control procedures
- Uncertainty models and post calibration
- FRM definition and endorsement
- Design and prototype of new sea-ice buoy

Next Steps (2024/2025)

Operational SLSTR day-2 SST, including:

- Skin and depth SST
- Temperature dependent coeffs
- Updates to algorithm, uncertainties and Quality Control
- Improvements to Bayesian cloud-screening
- Matchup dataset evolution

Operational SLSTR day-1 sea-ice ST:

- Demo products now on WEkEO
- Cloud-screening improvements underway (EUMETSAT PPS software) [3]

References and information

- [1] Documents and information: <https://slstr.eumetsat.int>
- [2] Validation and monitoring: <https://metis.eumetsat.int>
- [3] Sci4MaST project on SLSTR product development, Cal/Val tools and GHRSSST Project Office: <https://www.eumetsat.int/Sci4MaST>
- [4] TRUSTED project: <https://www.eumetsat.int/TRUSTED>