

sentinel-3

→ DATA ACCESS AND PRODUCTS

The Sentinel-3 satellite carries multiple instruments to measure sea-surface topography, sea- and land-surface temperature, and ocean- and land-surface colour. It supports the Copernicus marine, land, atmosphere, emergency, security and cryosphere applications.

The main objective of its Surface Topography Mission (STM) is to measure sea-surface topography, sea-surface height and significant wave height.

The Surface Topography Mission uses the Synthetic Aperture Radar Altimeter (SRAL) instrument, which transmits pulses alternatively at Ku-Band (13.575 GHz, bandwidth=350 MHz) for altimeter range measurements, complemented by a C-band frequency (5.41 GHz, bandwidth=320 MHz) to correct range delay errors. The S-3 STM mission is also composed of a MWR, a DORIS and a GNSS sensor for the computation of geophysical corrections and orbit product.

Coverage

The Sentinel-3 mission is based on a constellation of two identical satellites, Sentinel-3A and Sentinel-3B, launched separately. One satellite provides a revisit time of 27 days (385 orbits), providing global coverage of topography data at mesoscale (intertrack distance at the equator 104 km using one satellite, 52 km with two satellites).

Observation Scenario

The SENTINEL-3 SRAL observation scenario implements a pre-defined mission observation scenario where SRAL instrument will operate 100% in SAR mode. More information can be found at:

<https://sentinel.esa.int/web/sentinel/missions/sentinel-3/observation-scenario>

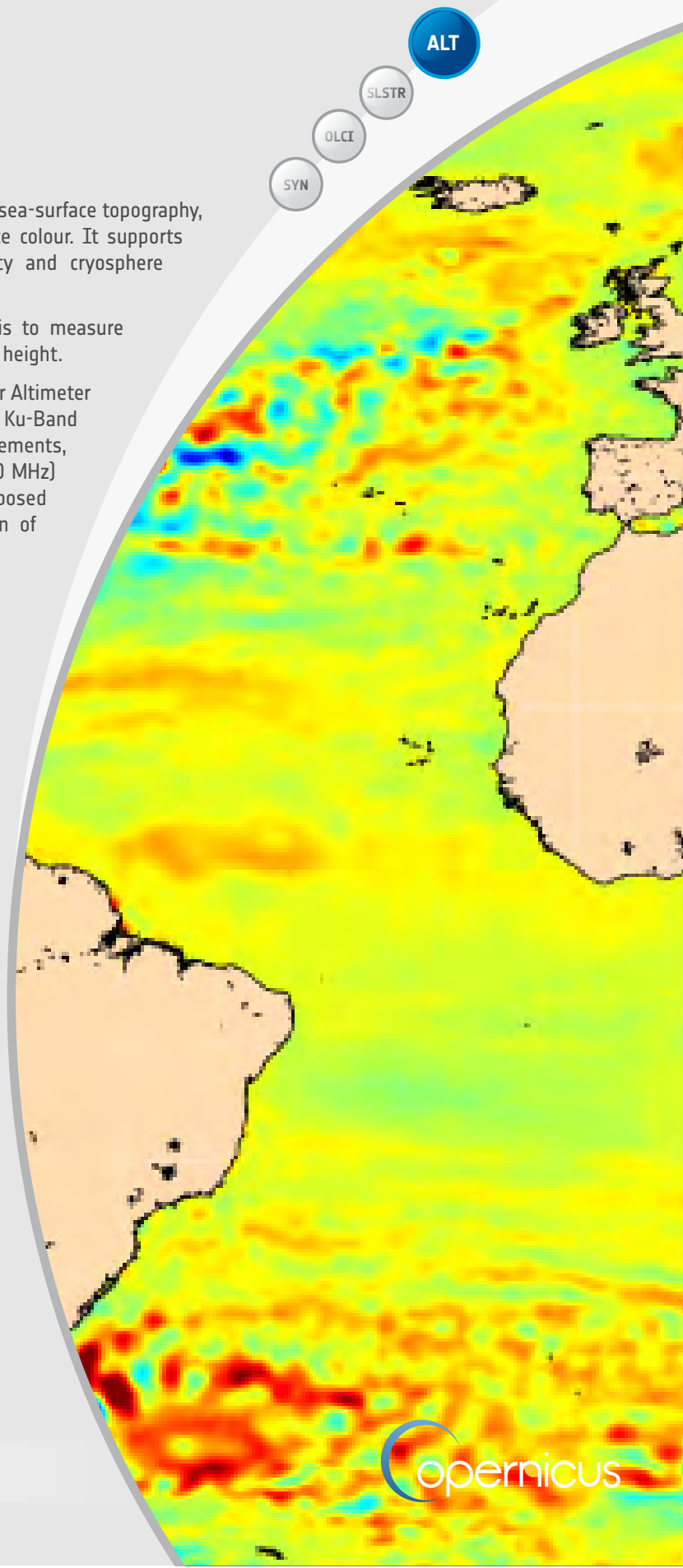
Data Access

Sentinel data products are made available systematically and free of charge to all data users including the general public, scientific and commercial users.

All SRAL data products are distributed in the Sentinel Standard Archive Format for Europe (SAFE) format.

More information can be found at:

<https://sentinel.esa.int/web/sentinel/sentinel-data-access>



User Products

The SRAL instrument acquires data in two measurement modes:

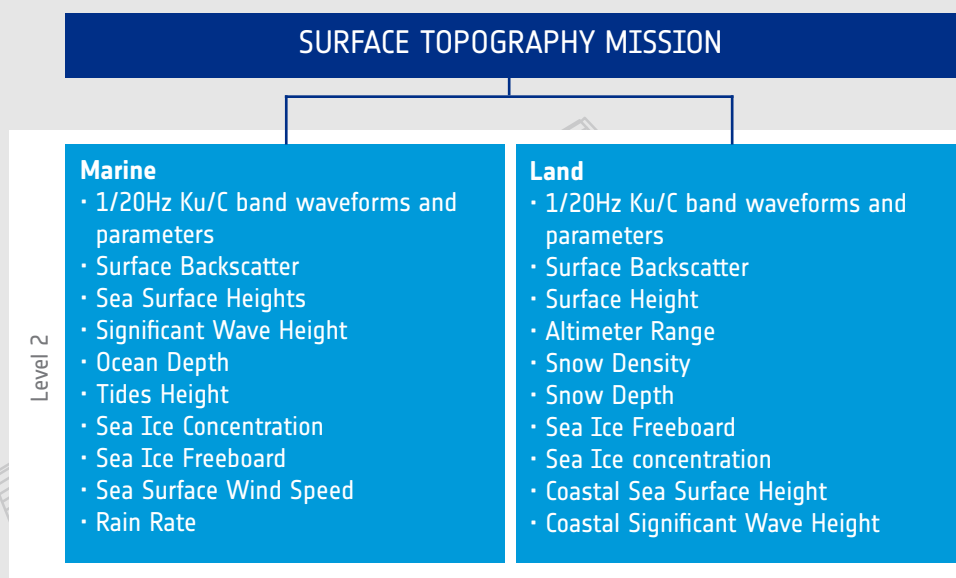
- **Low-Resolution Mode (LRM):** LRM mode is useful over open-ocean surfaces where topography is homogeneous.
- **Synthetic Aperture Radar (SAR) mode:** to achieve high along-track resolution over relatively flat surfaces.

Users are provided with **Level-1** and **Level-2** data products in **netCDF** format:

- **Level-1:** 20Hz Ku and C bands products corrected for instrumental effects.
- **Level-2-Land:** 1Hz and 20Hz Ku and C bands parameters re-tracking estimates over land, coastal areas, sea-ice, land ice and inland water, corrected for geophysical effects,
- **Level-2-Marine:** 1Hz and 20Hz Ku and C bands parameters re-tracking estimates over open ocean, coastal areas and sea ice, , corrected for geophysical effects ,

The **Level-2** products size is **200 MB** and contains three data files:

- A reduced (Red) file containing a subset of the main 1 Hz Ku band parameters (730KB).
- A standard (Std) file containing the standard 1 Hz and 20 Hz Ku and C-band parameters (44MB).
- An enhanced (Enh) file containing the standard 1 Hz and 20 Hz Ku and C-band parameters, the waveforms and the associated parameters necessary to reprocess the data. (155MB).



Tools

The Sentinel-3 Altimetry toolbox can be used for the visualisation and analysis of Sentinel-3 ALT data products.

More information can be found at:

<https://sentinel.esa.int/web/sentinel/toolboxes/sentinel-altimetry>

last update march 2015

The Sentinel Online Handbook

The **Sentinel-3 Mission Guide** is an overview of the mission, its objectives, the satellite, its payload, the ground segment, generated data products and related news.

<https://sentinel.esa.int/web/sentinel/missions/sentinel-3/ALT>

Further Information

For Copernicus User support, please contact EOSupport@Copernicus.esa.int

The **Sentinel-3 User Guide** provides a high-level description of the instruments, coverage and acquisition, and available product levels.

<https://sentinel.esa.int/web/sentinel/user-guides/sentinel-3-altimetry>

The **Sentinel-3 Technical Guide** provides a point of engagement for ESA and technical users who have previous experience of similar Earth observation missions, and possess in-depth understanding of data manipulation and management.

<https://sentinel.esa.int/web/sentinel/sentinel-3-altimetry-wiki>