

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 contributes to the Copernicus marine, land, atmosphere, emergency, security and cryosphere applications.

The ocean and land surface colour aspects are based on the OLCI optical instrument. Leading on from Envisat's MERIS, OLCI is a push-broom imaging spectrometer that measures solar radiation reflected from Earth.

The primary objective of OLCI products is to screen the ocean and land to acquire information related to biology (e.g. phenology of marine and terrestrial biomass). OLCI also provides information on the atmosphere and contributes to climate studies.

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). OLCI's field of view and its swath width of 1270 km, allows global coverage at the equator to be provided in 2–4 days with one satellite and in less than two days with two satellites.

Observation Scenario

The Sentinel-3 observation scenario implements a pre-defined observation plan, and is focused on delivering the observation requirements of Copernicus Services. Data will be acquired systematically based on a pre-set nominal mission scenario. Operations for OLCI are based on specific solar illumination conditions ($SZA < 80$ deg.).

The Sentinel High-Level Operations Plan 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.

Sentinel-3 products are distributed in the Sentinel Standard Archive Format for Europe (SAFE) format, including image data in NetCDF4 format and metadata in xml format.

Products are available either in NRT (Near Real Time), provided to the user within three hours after sensing, or in NTC (Non Time Critical) typically within 48hrs

More information can be found at: <https://sentinel.esa.int/web/sentinel/sentinel-data-access>

Level-1 False Color image showing vegetation and blooms.

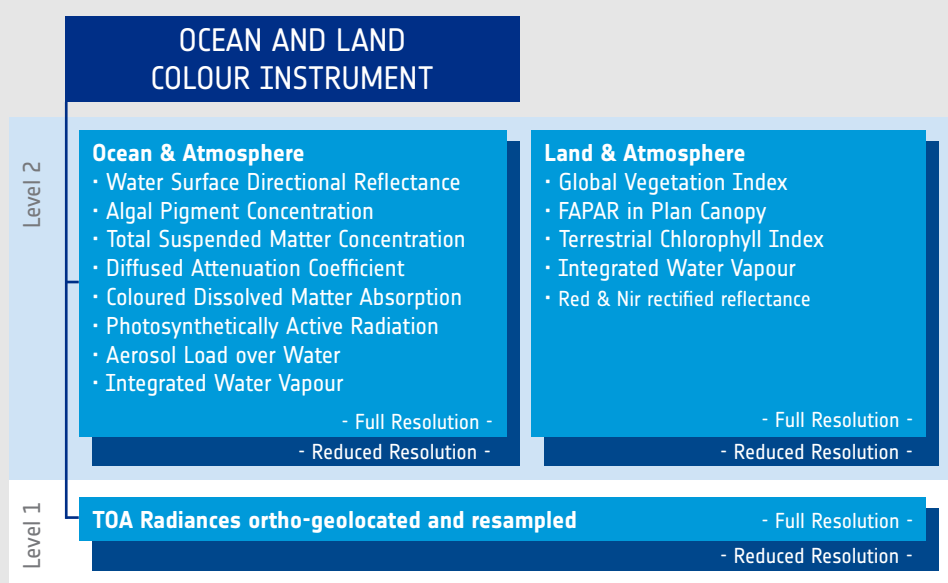


User Products

OLCI products are generated in FR (Full Resolution 300 m) and in RR (Reduced Resolution 1.2 km) for the whole globe with the same coverage. A RR product is disseminated as a 'stripe' product (half orbit) and for FR as 'frames' (a few minutes along the orbit track).

Level-1B products include Top-Of-Atmosphere (TOA) radiometric measurements in 21 spectral bands (400–1020 nm), radiometrically corrected, calibrated and spectrally characterised. It is ortho-geolocated (latitude and longitude coordinates, altitude) and annotated with satellite position and pointing, landmarks and preliminary pixel classification (e.g. land/water/cloud masks). The non-compressed size of a half orbit is 18.5GB for a FR (2.3GB for a RR).

Level-2 products consist of geophysical quantities derived from the Level-1 product. Marine and land products are generated separately and contain extra atmospheric information relevant for both application domains. The non-compressed size of a half orbit is 28.4GB for a marine FR (2.4GB for a FR) and for land FR 8.8 GB (1.1GB for RR).



Tools

The Sentinel-3 Toolbox can be used for the visualisation and analysis of OLCI data.

More information can be found at:

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

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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/OLCI>

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-olci>

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-olci-wiki>