isardSAT®

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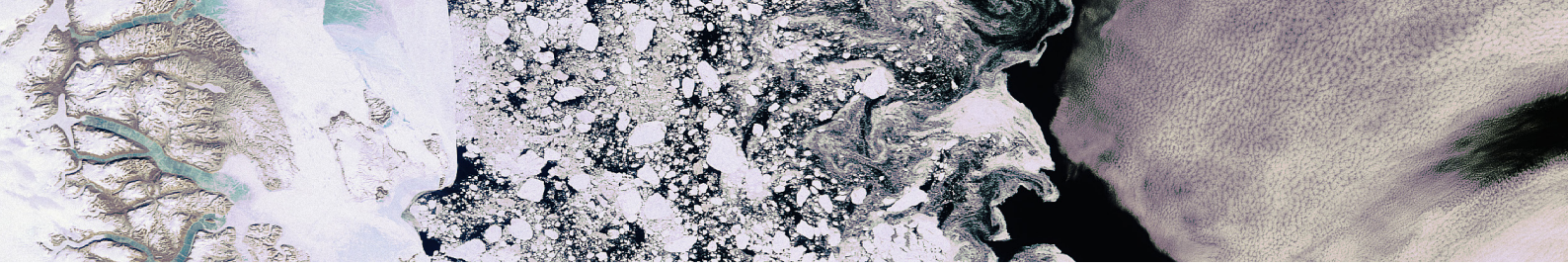


ABOUT

We measure the Earth using satellites to assess and monitor a variety of environmental indicators

Expert EO Services

-

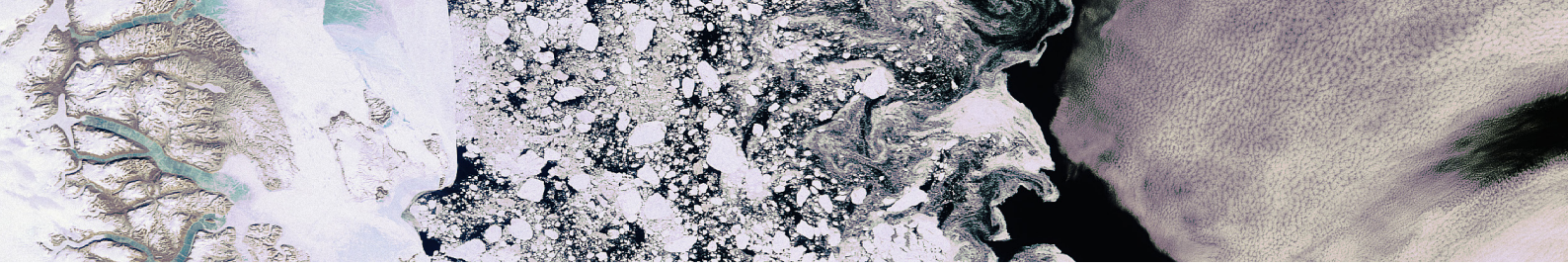
Science & technology: Data processing, satellites calibration and maintanance

isardSAT is an R&D enterprise that provides services and solutions in the Earth Observation field.

We develop projects that require the knowledge of the system, which are led by engineers, and projects that require a deeper knowledge of the final product, led by scientists. isardSAT is involved in the design, calibration and maintenance of civil remote sensing instruments, it means, from the development of algorithms for data processing to calibration and maintenance after the launch. Finally, isardSAT performs studies for scientific applications with the data acquired by these instruments and develops customised services using EO data applied to the infrastructure, water utilities, hydrology, urban planning and climate change sector.

isardSAT was founded in 2006 in Barcelona with the mission to improve the knowledge of our planet through remote sensing. isardSAT develops engineering and scientific projects with the objective of becoming the leading company in active and passive microwave remote sensing and preferred partner in the Earth Observation field.

isardSAT headquarters are located in Barcelona. We have two subsidiaries: isardSAT UK in Guilford and isardSAT Polska in Gdynia.



ABOUT

Trusted by

isardSAT is an ESA's preferred supplier

EUMETSAT

esa European Space Agency

UN HABITAT FOR A BETTER URBAN FUTURE

ECMWF

pwc

OXFAM

We partner with leading European meteorological institutions and private data providers

TRE ALTAMIRA A CLS Group Company

Koninklijk Nederlands Meteorologisch Instituut
Ministerie van Infrastructuur en Waterstaat

FINNISH METEOROLOGICAL INSTITUTE

SMHI

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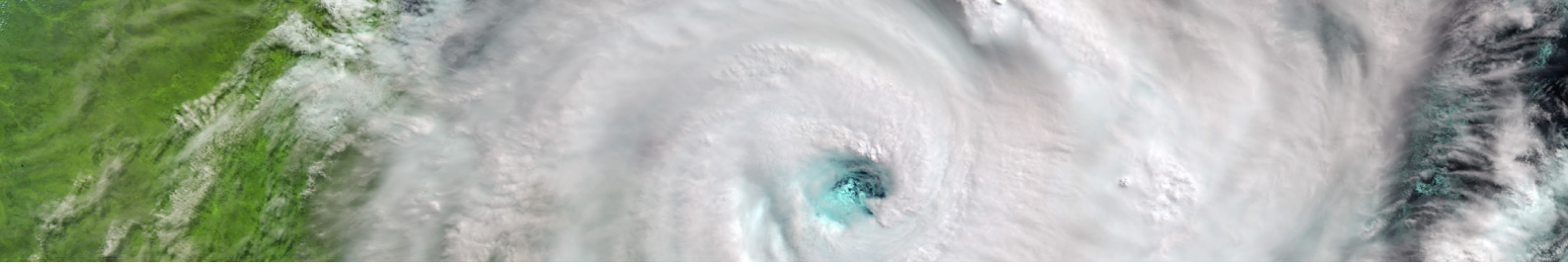

SERVICES

Expert EO Services

Applied technologies in a changing climate to reduce risk and loss and to increase profits.

- Climate Change
- Risk Management (incl. DRR)
- Data Platforms
- Infrastructure (design & construction)
- Air Quality
- Hydrology

On-demand validated climate data to tackle climate change.

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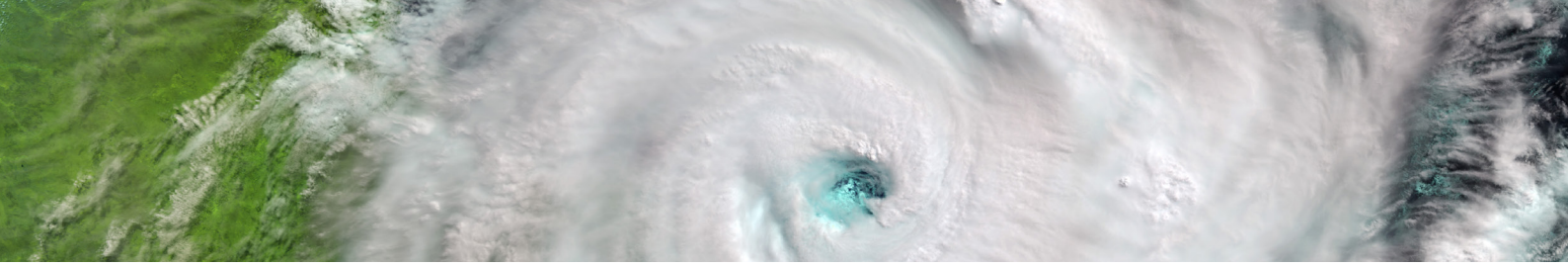
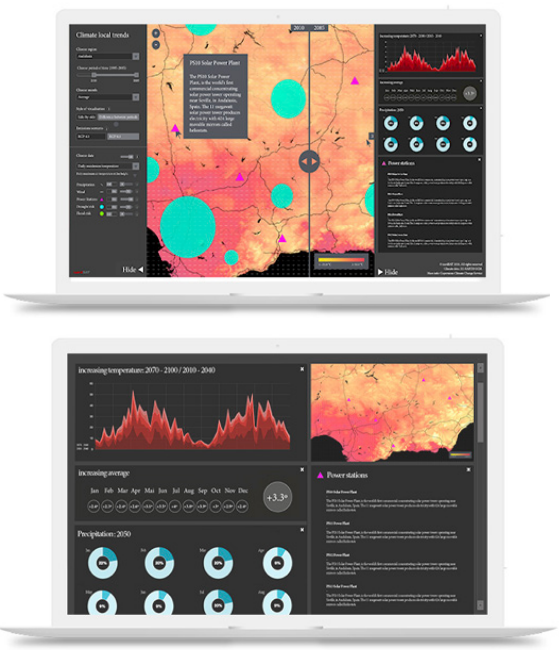


EO EXPERT SERVICES

Climate Change and Risk Management

Analysing and correlating satellite observations with other models, remote sensors, citizen information and socio-economic data for planning the future. Global, regional and hyperlocal information in an easy-to-use interface with the option to work on your own printable reports.



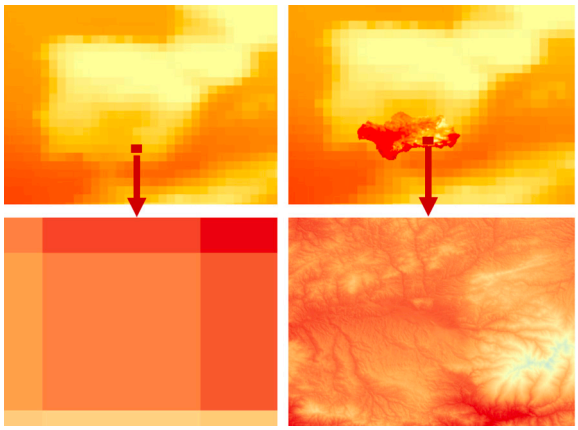
High resolution results using satellite data: Downscaling and bias correction

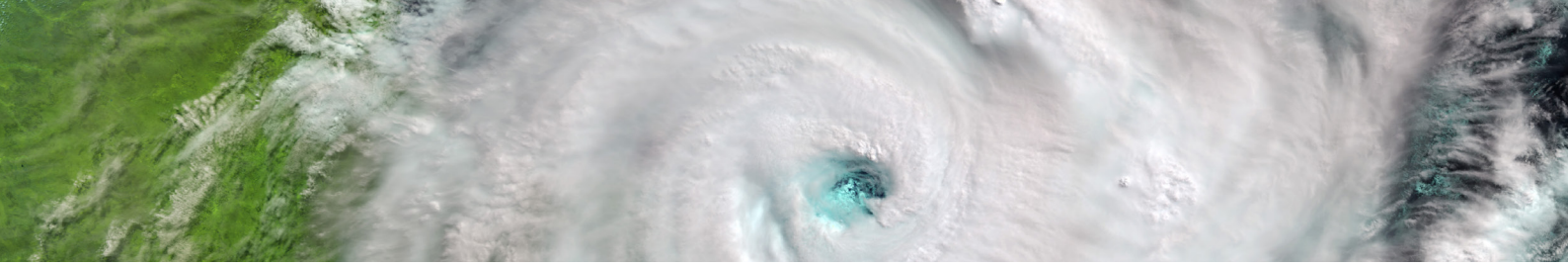
Copernicus offers 19 free climate change models with a 40x40km resolution.
With these models we improve the resolution to 1x1km[1] through downscaling and bias correction

[1] For Soil Moisture data we can provide 200m x 200m downscaling

Copernicus data: 40x40km

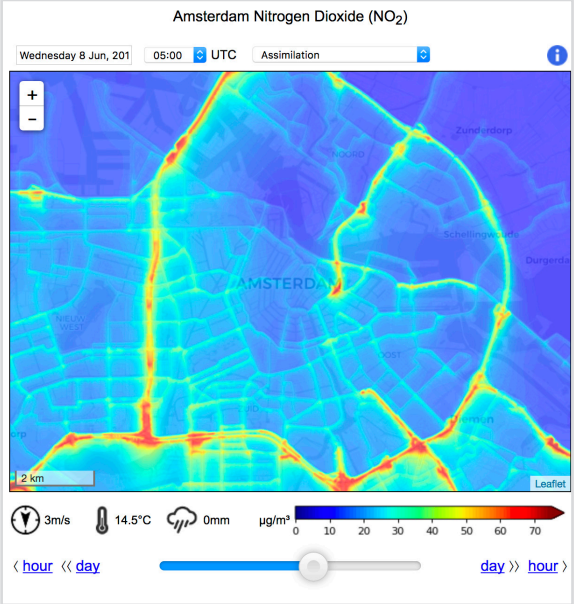
isardSAT: 1x1km





EO EXPERT SERVICES

Air Quality services: AirQast



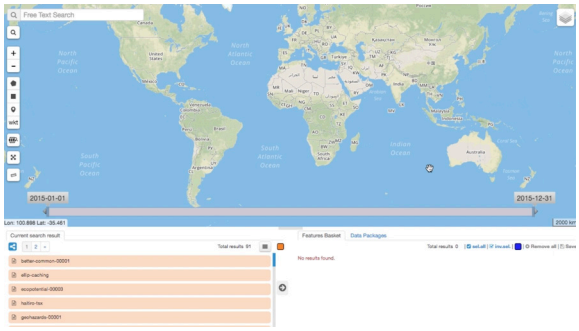
Air quality knowledge for informed sustainable decisions particularly in urban planning including transport master planning among other areas. Driven by science and technology and delivered by the lead providers.

AirQast, a project led by isarSAT, focuses on an integrated service platform providing a full range of services covering all value chain from Air Quality (AQ) information monitoring emissions inventory up to AQ and air pollutants forecasting systems as well as providing a registred Decision-Making Tool for urban planning.

Visit AirQast site >

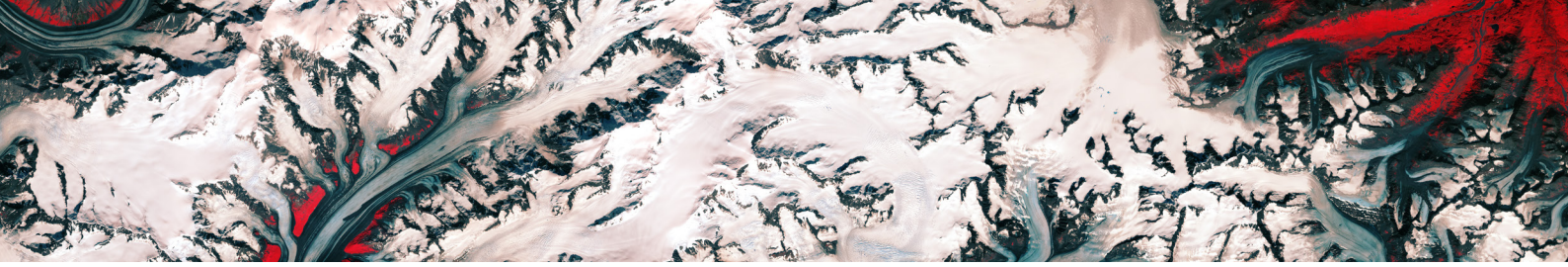
Visit Retina site >

H-TEP: The Hydrology Exploitation Platform



The Hydrology Thematic Exploitation Platform (H-TEP) is an European Space Agency (ESA) project that aims at providing a collaborative framework where scientific users, river basin organisations and service providers could rapidly and easily access to a large number of EO data, integrate their own data and tools (in-situ data, socioeconomic data, analysis tools…) and process it (service prototypes, hydrological models, meteorological models) within a user-friendly environment.

Visit H-TEP site >



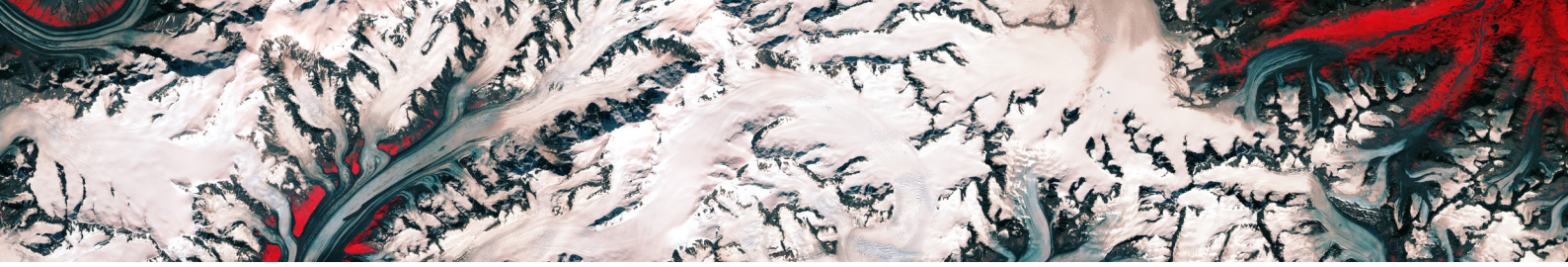
SERVICES

Science & technology

Altimetry, Passive Microwaves and
Synthetic -Aperture Radar (SAR) imaging.
Radar algorithm development and data processing.

- **Algorithm development**
- **Geophysical validation**
- **Instrumental calibration**
- **Toolboxes**
- **Dissemination & Outreach**

isardSAT is involved in the design, calibration and maintenance of civil remote sensing instruments, it means, from the development of algorithms for data processing to calibration and maintenance after the launch. Finally, isardSAT performs studies for scientific applications with the data acquired by these instruments and develops customised services using EO data.



SCIENCE & TECHNOLOGY SERVICES

Algorithm development

The data as acquired by an instrument are not of any use for scientists. Scientists need these data to be transformed into physical variables. The process between the data as acquired by the instrument and the data as used by the scientist require the development of physical and engineering based algorithms, which also includes the instrumental corrections (see instrumental calibration section).

In particular, isardSAT's main expertise is in the first levels of instrument processing, from the instruments source packets (Level 0 / Level 1 processing) to retracking algorithms for Level 2 processing.

Geophysical validation

Validation is the process of assessing, by independent means, the quality of the data products derived from satellite instrument measurements.

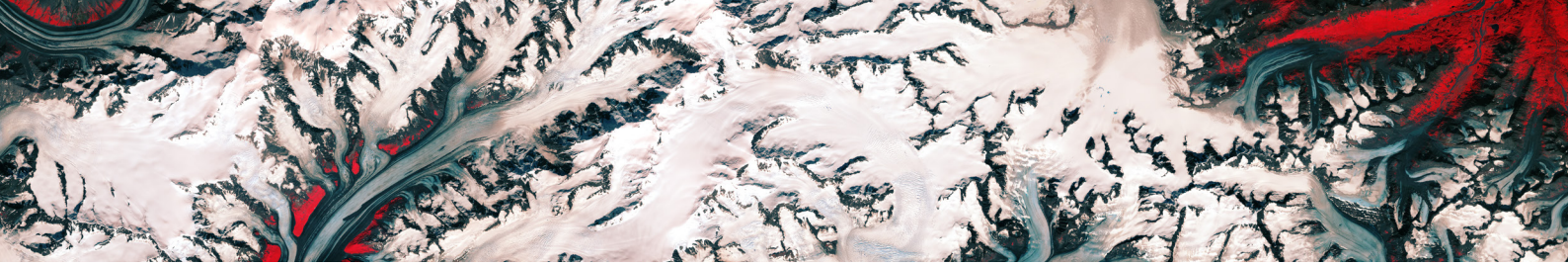
Geophysical products are generated from satellite data by applying an algorithm that is either physically or empirically based. Comparing the retrieved products, and their trends with in-situ observations or model outputs is an important part of the process to assess and document the reliability of given retrieval algorithms in deriving these products as well as to define its domain of applicability.

For many products validation is a complex problem since the comparison between products derived from satellite measurements and independent reference products often from in situ measurements is subject to several errors: (1) an inherent satellite-derived product error, (2) the error in the reference data, and (3) the error introduced by the comparison methodology, often due to non-collocation in time and space.

Instrumental calibration

Calibration is the process of quantitatively defining the satellite instrument response to known, controlled signal inputs. Instrument calibration is critical for any higher-level data processing, especially for deriving quantitative products or when data from different instruments need to be merged. For climate applications, the requirement for accurate calibration is particularly stringent since detection of small trends over long periods requires comparability of different instruments flown on different satellites at different times. Building homogeneous climate data records is contingent on very good calibration and error characterisation.

Satellite instrument calibration should take into account all phases of an instrument's lifetime: from design and pre-launch phases to post-launch, and in-orbit operations.



SCIENCE & TECHNOLOGY SERVICES

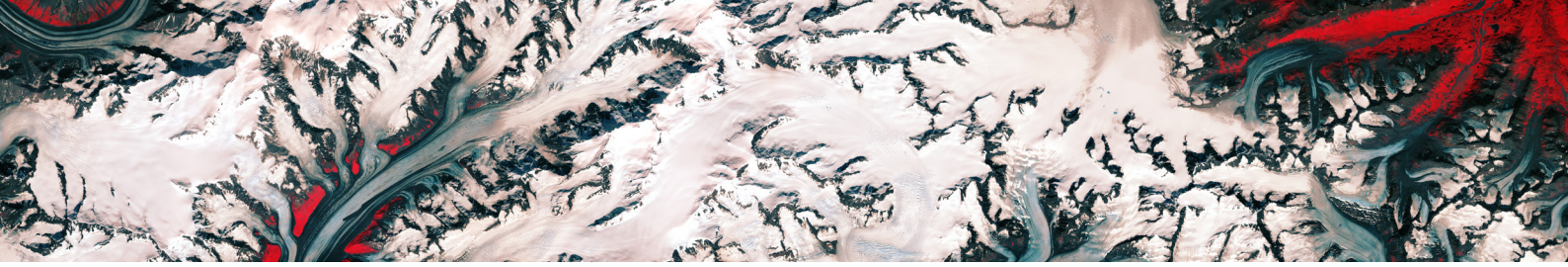
Toolboxes

The toolboxes are widely used in the remote sensing community in order to easily open and visualise Earth Observation data. They include basic functionalities to display optical or Synthetic -Aperture Radar (SAR) images over the Earth or plot different variables along time. They could also include more complex functionalities to process some parameters on a different way than they are normally processed by the official processors and use them in research activities. Toolboxes can be internal scripts that companies run themselves to test their research studies or can be free open source developed and distributed from the space agencies to the scientific community. This is the case of the Sentinel Toolboxes, developed by ESA under the Scientific Exploitation of Operational Missions (SEOM) program inheriting the functionalities of the historical toolboxes.

Dissemination & Outreach

This activity includes different tasks with the objective to inform and involve the wider community in each particular project:

- Promote the project outputs within the relevant scientific and operational communities
- Present the project results at scientific meetings.
- Establish and mantain the project web page.
- Submit papers to international peer-reviewed journal(s), publishing the results of the project.
- Produce project Brochures and other outreach material.
- Create a profile of the project on social networks and post relevant information.
- Organise seminars or workshops.



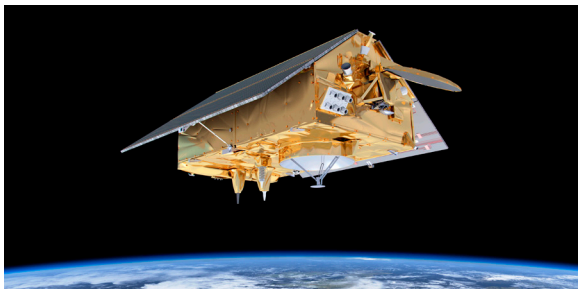
SCIENCE & TECHNOLOGY SERVICES

Sentinel-3
Mission Performance Centre

isardSAT, within a large European consortium, undertakes the Preparation and Operations of the Mission Performance Centre (MPC) for the COPERNICUS Sentinel-3 Mission, in particular for the Surface Topography Mission (STM), prepares the Commissioning and Routine Operation Phases, and supports the PDGS commissioning activities and the core product verification, calibration and geophysical validation activities.

Video >

Sentinel-6 Poseidon 4 L1
Ground Processor Prototype



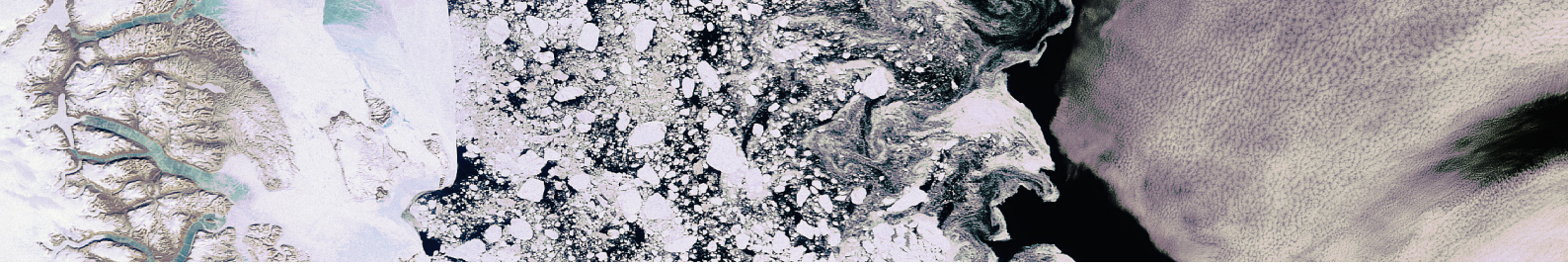
Sentinel 6/Jason-CS Poseidon 4 L1 Ground Processor Prototype is an operational oceanography programme of two satellites that will ensure continuity to the Jason series of operational missions.

isardSAT is developing the Ground Prototype Processor for the Poseidon-4. This prototype processes all the chains starting from the Instrument Source Packets, and up to the Level 1B (calibrated pulse-width limited or multi-looked SAR data).

The mission is being developed by a multi Agency partnership consisting of ESA, EUMETSAT, NOAA, CNES and NASA-JPL. ESA is responsible for the Jason-CS Space Segment development along with Astrium GmbH as a prime contractor.

Video >

SEE ALL PROJECTS >



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