

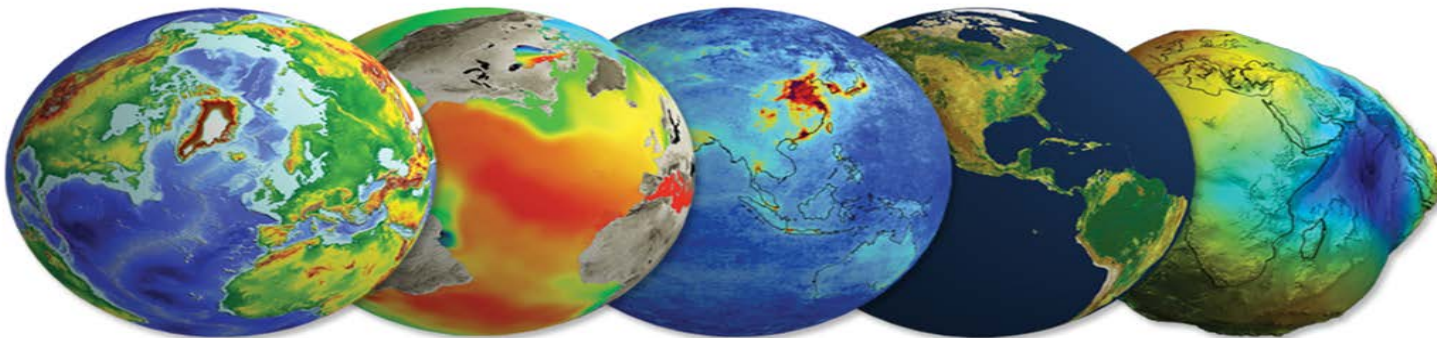
Access to ESA EO & Copernicus Sentinel Data

Presenter: F. Sarti, ESA / EOP



Presentation Overview

1. Data Policy (ESA Ers, Envisat, EarthExplorers and Copernicus Sentinels)
2. ESA Data access (*ENVISAT and ERS archives and Earth Explorers*)
 1. EO-SSO registration
 2. My Online data access (Free dataset)
 3. Project proposal and access to Restrained dataset
3. Sentinel Data access (*Sentinel-1*)
 1. Use typologies (focusing on scientific users)
 2. Sentinel data hub (registration, search and download)
4. Important Websites (PI Community, Sentinel online, SEOM)





ERS and Envisat



Earth Explorers

Revised ESA Earth Observation Data Policy
ESA/PB-EO(2010)54

- Free datasets (for all data available on Internet)
- Restrained datasets (in case of technical constraints)



Sentinels

Copernicus (GMES) Data Policy,
Joint Principles for Sentinel Data Policy
[ESA/PB-EO(2013)30, rev.1]

- Free, full and open data policy

ESA Data Policy for ERS, Envisat and ESA Earth Explorers Missions

- ❑ to stimulate a balanced development of Science, Public Utility and Commercial Applications, consistent with the mission objectives
- ❑ to maximize the beneficial use of data from ESA EO satellites
- ❑ Data free of charge (for both dataset types below)

Definition of Dataset Types

Free data

Comprises majority of data available, for on-line data collections (i.e. dataset without technical or budget limitations)

- Open access and free of charge
- User registration done electronically including user acceptance of **ESA Terms & Conditions** (on-line)
- Immediate on-line access to the dataset

Restrained data

For all other dataset (mainly framed data) archive, e.g. ASAR IM or ASAR AP)

- Free of charge – Project (Full) Proposal acceptance of the **ESA Terms & Conditions** (on-line) community webpage, data distributed, upon the user acceptance (typically 2/4 weeks) with assigned quota after evaluation and

Expected
to change
in July
2016
(ASAR,
SAR)

ESA Earth Observation data access (Ers ,Envisat ,Earth Explorers - overview)



Free Dataset

- Envisat/ERS Missions (Atmospheric, Chemistry, Altimetry, Scatterometer)
- MERIS Reduce Resolution
- (A)ATSR
- ESA Earth Explorers (GOCE, SMOS and CRYOSAT)

User Registration
(Log in to My Earthnet)

Add needed products in
My Online Data section

Online acceptance of
Terms & Conditions to use ESA
and/or TPM data

Get access info for selected
products (FTP, EOLI-SA, MERCI)

Restrained Dataset

- Envisat/ERS Missions (e.g. ASAR HR and SAR)
- ESA TPM Missions (ALOS, SPOT, etc.)
- MERIS Full Resolution

User Registration
(Log in to My Earthnet)

Write a Project Proposal

Acceptance of
Conditions to use ESA
and/or TPM data

For the acceptance of the
Project by ESA, submission of
the orders via EOLI-SA

Expected to change
in July
2016
(ASAR,
SAR)

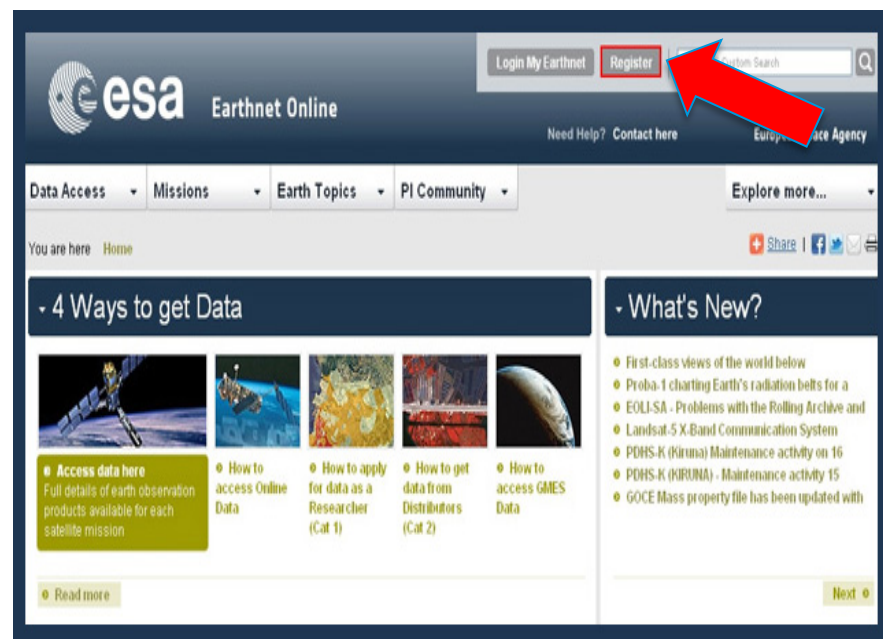
EO-SSO account Registration & Log in (1/3)



The EO-SSO account allows the PI to access to *My Earthnet* functionality.

If you **do not** have an EO-SSO account, follow the registration procedure starting from:
<https://earth.esa.int/web/guest/home> or <https://earth.esa.int/web/guest/pi-community>

Step 1 – Click ‘*Register*’ button at the top of the page



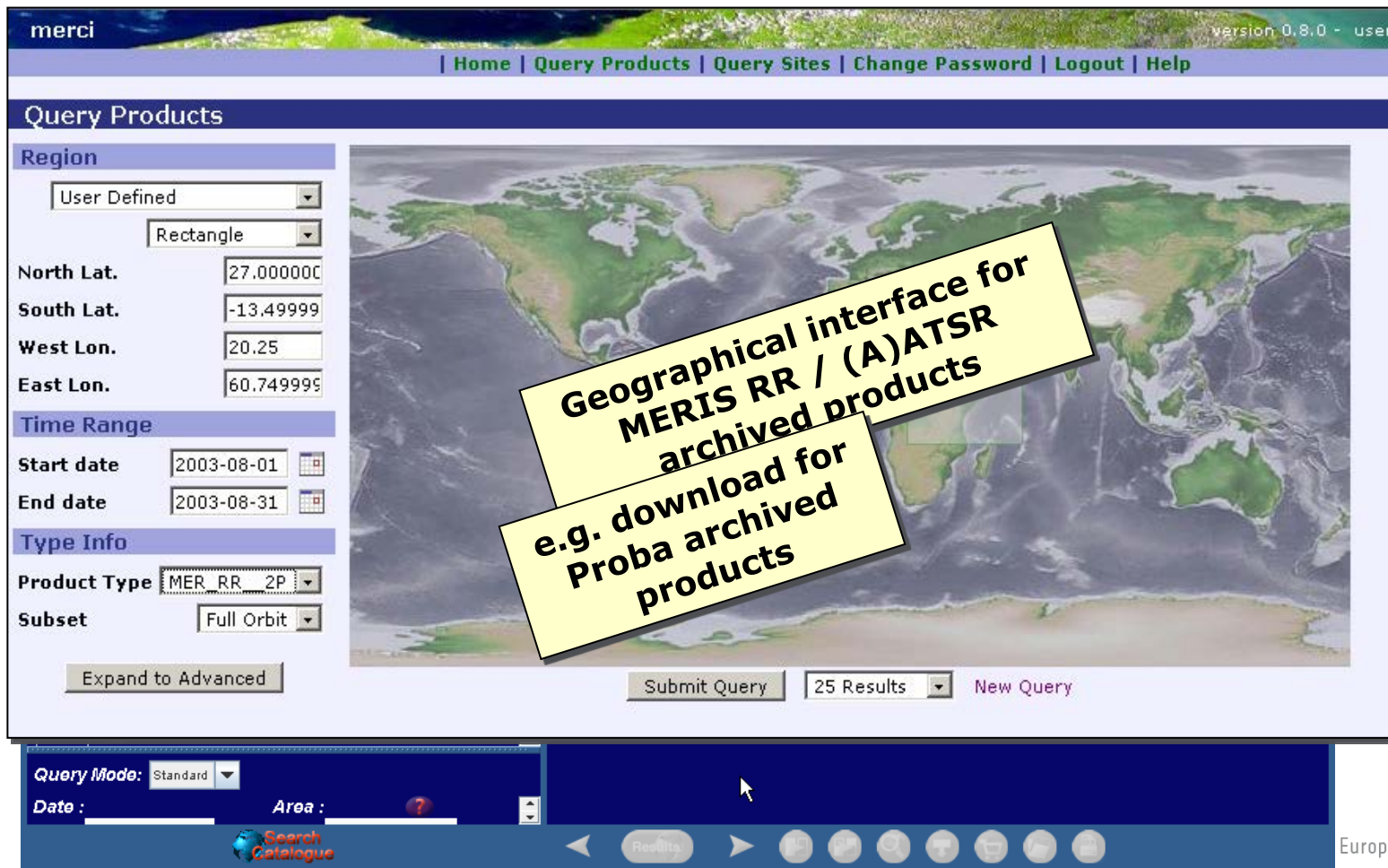
Step 2 - Fill in the registration form with your prospective account details

Step 3 – Click the ‘*Registration*’ button once the form is completed

Your new account will be generated, and you will shortly receive an automated email asking you to activate this account. Simply click on the link provided in the email, and your registration will be complete.

My Online Data (Free Dataset) Access

The access to the selected Online data, is provided by ESA EO Help & Order Desk. They will address you to the appropriate system providing direct access to EO data for download via internet



merci version 0.8.0 - user

[Home](#) | [Query Products](#) | [Query Sites](#) | [Change Password](#) | [Logout](#) | [Help](#)

Query Products

Region

Region:

North Lat.:

South Lat.:

West Lon.:

East Lon.:

Time Range

Start date:

End date:

Type Info

Product Type:

Subset:

Geographical interface for MERIS RR / (A)ATSR archived products

e.g. download for Proba archived products

[New Query](#)

Query Mode:

Date :

[Search Catalogue](#)

[Results](#) [Home](#) [Query](#) [Help](#) [Logout](#) [Change Password](#)

Project (Full) Proposal Submission (1/2)

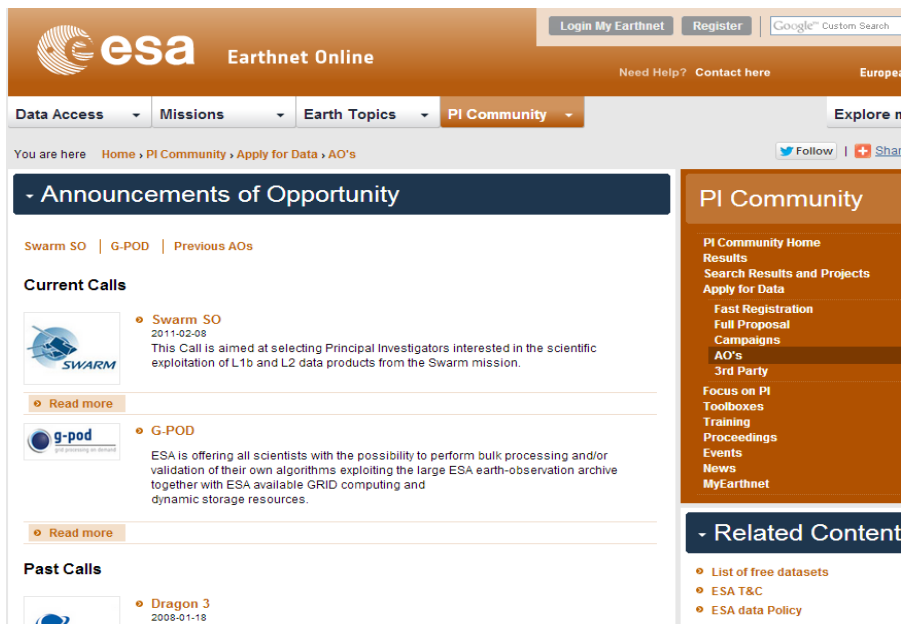
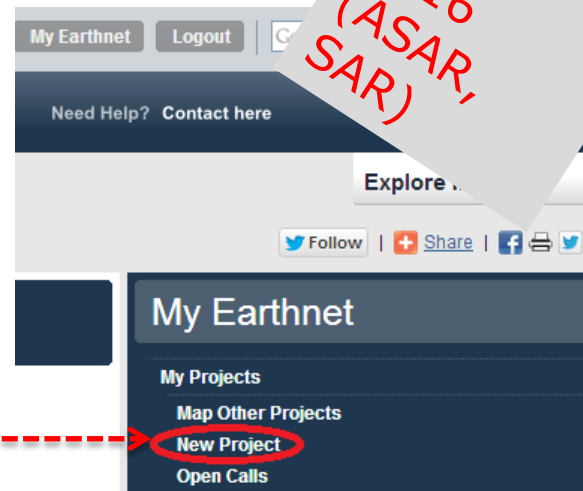
Expected to change in July 2016 (ASAR, SAR)

Once you are in your personal area of **My Earthnet** you can:

- Start the submission of a Project (Full) Proposal clicking on **'New Project'** button on the right panel
- Respond to an ESA Call to access data from new specific Missions (e.g. SWARM) or International cooperation (e.g. Dragon-3)

List of the Open Calls available at:

<https://earth.esa.int/web/guest/pi-community/apply-for-data/ao-s>



Project (Full) Proposal Submission (2/2)



The submission forms are tailored to several different aspects of the Project (Full) Proposal:

- The Cover page: general information about the PI and an overview of the project
- The Team Composition, Innovation and Contribution sections
- The Detailed Description and Schedule of the Project
- The Data Description pages
- Acceptance of ESA & TPM Terms and Conditions

Detailed Description and Schedule of the Project Proposal

is the most important part of the Project Proposal and the main basis for its evaluation. It should include as a minimum the following information:

- Technical and scientific approach and methods proposed to meet the proposal's objectives, and the success criteria of the project.
- Anticipated results and deliverables of the investigation, and schedule for availability of such results and deliverables.
- Work Plan of the investigation, including a description of the key milestones and associated deliverables, the planned use of data, software/tools, models and facilities.
- Justification for the amount and type of requested data products.

Data Requirements: Instruments and Products

In order to better complete this section, providing the necessary information about the requested products, before submitting a proposal, it is strongly recommended to consult the ESA Catalogues as far as the ESA Earth Observation data coverage is concerned.

The EOLI catalogue can be freely used for search and browsing as an anonymous user. No user registration is required for this.

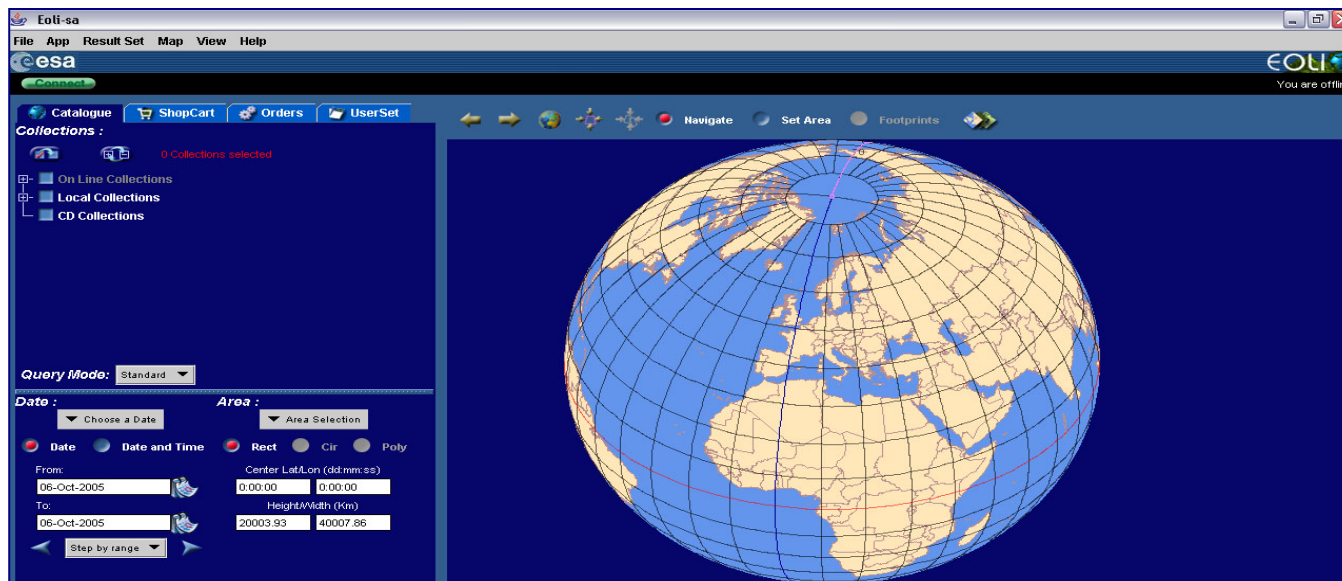
Further details available in the Guidelines for the submission of Project Proposals at: <https://earth.esa.int/files/guidelines>

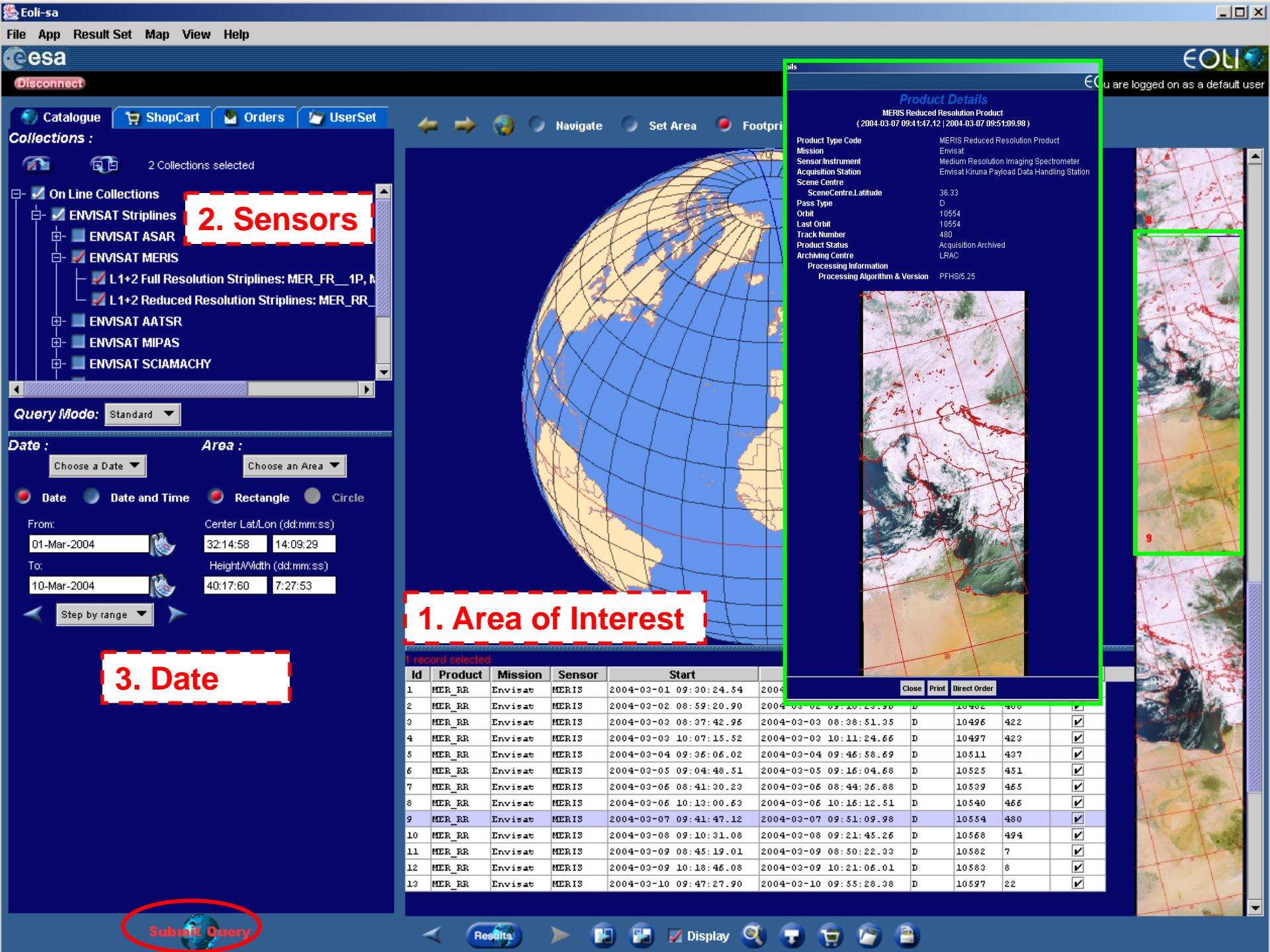
Access to the Restrained Dataset

Expected to change in July 2016 (ASAR, SAR)

- The Proposal, once submitted, will be reviewed and a quota will be assigned to the PI
- The PI will receive the notification via email (Final Acceptance email)
- ESA EO Help & Order Desk will send to the PI the instructions how to access to the requested products (Restrained Dataset). Usually an **EOLI-SA** account will be created to place the orders.

The **EOLI – Stand Alone (SA)** Client provides access to the online ESA catalogues of EO products, allowing the visualisation of quick-looks and online ordering. **Latest version 9.4.3, available on <http://earth.esa.int/EOLI/EOLi.html>**





2. Sensors

1. Area of Interest

3. Date

Product Details

MERIS Reduced Resolution Product
(2004-03-07 09:14:12 | 2004-03-07 09:51:09.98)

Product Type Code: MERIS Reduced Resolution Product
Mission: Envisat
Sensor Instrument: Medium Resolution Imaging Spectrometer
Acquisition Station: Envisat Kiruna Payload Data Handling Station
Scene Centre: 36.33
SceneCentre.Latitude: D
Pass Type: 10554
Orbit: 10554
Last Orbit: 480
Track Number: Acquisition Archived
Product Status: LRAC
Archiving Centre: Processing Information
Processing Algorithm & Version: PFHS/5.25



1 record selected

Id	Product	Mission	Sensor	Start	End	Product Type Code	Scene Centre	SceneCentre.Latitude	Pass Type	Orbit	Last Orbit	Track Number	Product Status	Archiving Centre
1	MER_RR	Envisat	MERIS	2004-03-01 09:30:24.54	2004-03-02 09:10:23.98	D	10482	422	✓					
2	MER_RR	Envisat	MERIS	2004-03-02 08:59:20.90	2004-03-03 08:38:51.35	D	10496	422	✓					
3	MER_RR	Envisat	MERIS	2004-03-03 08:37:42.96	2004-03-03 10:11:24.66	D	10497	423	✓					
4	MER_RR	Envisat	MERIS	2004-03-03 10:07:15.52	2004-03-04 09:46:58.69	D	10511	437	✓					
5	MER_RR	Envisat	MERIS	2004-03-04 09:36:06.02	2004-03-05 09:16:04.68	D	10525	451	✓					
6	MER_RR	Envisat	MERIS	2004-03-05 09:04:48.51	2004-03-06 08:44:36.88	D	10539	465	✓					
7	MER_RR	Envisat	MERIS	2004-03-06 08:41:30.23	2004-03-06 10:16:12.51	D	10540	466	✓					
8	MER_RR	Envisat	MERIS	2004-03-06 10:13:00.63	2004-03-07 09:51:09.98	D	10554	480	✓					
9	MER_RR	Envisat	MERIS	2004-03-07 09:41:47.12	2004-03-08 09:21:45.26	D	10568	494	✓					
10	MER_RR	Envisat	MERIS	2004-03-08 09:10:31.08	2004-03-09 08:50:22.33	D	10582	?	✓					
11	MER_RR	Envisat	MERIS	2004-03-09 08:45:19.01	2004-03-09 10:21:06.01	D	10583	8	✓					
12	MER_RR	Envisat	MERIS	2004-03-09 10:18:46.08	2004-03-10 09:55:28.38	D	10597	22	✓					
13	MER_RR	Envisat	MERIS	2004-03-10 09:47:27.90										

Submit Query

From July 2016: Envisat-ERS (A)SAR On-the-Fly (OTF) Data Processing and Data Download service



See: <https://earth.esa.int/web/guest/content/-/article/new-service-to-go-live-envisat-ers-asar-on-the-fly-data-processing-and-data-download-service>

Starting from July 2016, users will get **direct access** to ESA complete **(A)SAR archive**. This will allow users to both generate an (A)SAR Level 1 **product** directly from ESA's Level 0 data archive and download the generated product through the EOLI-SA interface.

The service will be **implemented** gradually first for **Envisat ASAR data from July 2016**, then for **ERS-1 and ERS-2 SAR data during autumn 2016**.

From July 2016: Envisat-ERS (A)SAR On-the-Fly (OTF) Data Processing and Data Download service



The standard service will allow users to obtain the following **Level 1 products**:

Envisat ASAR: IMS, IMP, APS, APP and WSS

ERS-1/2 SAR: IMS and IMP

This service will be regulated via a daily download quota.

The advanced service will allow some users to generate a larger amount of L1 products and/or download limited amount of L0 data segments. The promotion in the advanced user category will require a justification and ESA authorisation.

The medium resolution Envisat WSM, IMM, APM and GM Level 1 products will be available via direct download from a separate ESA data access service.

In case of specific requests, please contact [EOHelp](#)

Copernicus Data Policy for Sentinels Missions

- ❑ The Copernicus data policy is adopted via a Delegated Regulation
- ❑ This policy promotes the access, use and sharing of Copernicus information and data on a full, free and open basis
- ❑ One of the main objectives is to support downstream segment and research, technology and innovation communities
- ❑ The European research institutes will be able to make the best use of these data to create innovative applications and services

**Sentinel Data Policy = full and open access
to Sentinel data to all users**

In practical terms

- Anybody can (has the right to) access acquired Sentinel data
- Licenses for the Sentinel data are free of charge
- Online access with users registration including acceptance of T&C*

**TERMS AND CONDITIONS FOR THE USE AND DISTRIBUTION OF SENTINEL DATA
available online on the Sentinel website*

(https://sentinel.esa.int/documents/247904/690755/TC_Sentinel_Data_31072014.pdf)

Sentinel data access for Scientific users- (Sentinel Data Hub)



The free, full and open data policy adopted for the Copernicus programme foresees access available to all users for the Sentinel data products, via a simple registration.

Users can register and download Sentinel-1 data from the online Sentinel Data Hub (<https://scihub.copernicus.eu/>)

Anyone can register online via self-registration. The self-registration process is automatic and immediate. Registration grants access rights for searching and downloading Sentinel-1 products. Sentinel-1 products are available at no cost for anybody. The data available through the Data Hub is governed by the Terms and Conditions of the use and distribution of Sentinel data, which the User is deemed to have accepted by using the Sentinel data.

The S-1 Scientific data Hub [Rolling Archive maintains the latest 2 months of products for download via HTTP.](#)

More technical [https:// scihub.copernicus.eu /userguide/](https://scihub.copernicus.eu/userguide/)

Sentinel Data Hub (1/4)



From October 2014 first Copernicus satellite Sentinel-1A is operational (data available to all users via Sentinel data hub). Sentinel-2A data are available to users from December 2015.

Sentinel-1B data expected to be released to users from October 2016 and Sentinel-3 data from summer 2016.

...Click on
“Scientific Hub”

The screenshot shows the Sentinel Scientific Data Hub website. The URL in the browser is <https://scihub.copernicus.eu>. The page features a blue header with the Copernicus logo and the title 'Sentinels Scientific Data Hub'. Below the header, a dark blue banner reads 'Welcome to the Sentinels Scientific/Other use Data Hub'. The main content area includes a row of five buttons: 'Scientific Hub', 'API Hub', 'S-2 PreOpsHub', 'User Guide', and 'Roadmap'. Below this, an 'Access Points' section provides details for each hub. The 'Scientific Hub' is described as the access point for all Sentinel missions with an interactive graphical user interface. The 'API Hub' is for API users without a graphical interface. The 'Sentinel-2 Pre-operational Hub' is for pre-operational access to Sentinel-2 data, with login credentials: guest : guest. At the bottom, there is a link to eosupport@copernicus.esa.int for support and a 'Statistics' section.

https://scihub.copernicus.eu

Suggested Sites

Copernicus Sentinels Scientific Data Hub

esa

Welcome to the Sentinels Scientific/Other use Data Hub

The Sentinels Scientific Data Hub provides complete, free and open access to Sentinel-1 and Sentinel-2 user products, starting from the In-Orbit Commissioning Review (IOCR).

Scientific Hub API Hub S-2 PreOpsHub User Guide Roadmap

Access Points

Scientific Hub : access point for all sentinel mission with access to the interactive graphical user interface.
API Hub : access point for API users with no graphical interface. All API users regularly downloading the latest data are encouraged to use this access point for a better performance.
Sentinel-2 Pre-operational Hub : pre-operational access point for all users to Sentinel-2 data. Login credentials are guest : guest .

For more details or request of help support please send an e-mail to eosupport@copernicus.esa.int

Statistics

Sentinel Data Hub overview and registration (2/4)



1) If you are already registered log in to start using the Sentinel Hub geographic interface to browse and download Sentinel data, if you are a new user click on the **circled red** link “Are you interested entering Sentinel Data Hub system?” to complete registration

Sentinel-1 Scientific Data Hub

European Commission ESA

Overview About

username: password: [Forgot your password?](#)

Overview

The Sentinel Data Hub is a web based system designed to provide EO data users with distributed mirror archives and bulk dissemination capabilities for the Sentinel-1 products.

Detailed information on Sentinel-1 products and Data Access mechanisms is available at <https://sentinel.esa.int/web/sentinel/sentinel-data-access>

References:

- <http://www.copernicus.eu/>
- <https://sentinel.esa.int/>

For a brief guide to the Sentinel Data Hub please click [here](#).

Some users have experienced problems while using IE9 (e.g. self-registration). This issue will be fixed in the enhanced web version of the Data Hub. For the time being we suggest using alternative browsers (IE10 or 11, Chrome, Firefox, Safari)

[Are you interested entering Sentinel Data Hub system?](#)

Sentinel-1 Scientific Data Hub

European Commission ESA

Overview About

username: password: [Forgot your password?](#)

Register

Please fill this form to start the registration procedure then you will receive a mail with a link to validate your mail address. Finally an administrator will be able to let you access to the Sentinel Data Hub.

Please note that username and e-mail address should be provided in lower case only.

Username	<input type="text"/>	Confirm it	<input type="text"/>
Password	<input type="text"/>	Confirm it	<input type="text"/>
E-mail	<input type="text"/>	Firstname	<input type="text"/>
Domain	<input type="text" value="Atmosphere"/>	Lastname	<input type="text"/>
Usage	<input type="text" value="Research"/>		
Country	<input type="text"/>		

By registering in this website you are deemed to have accepted the [T&C for Sentinel data use](#).

2) fill this form to start registration procedure (username and e-mail address should be provided in lower case only) then you will receive a mail with a link to validate your mail address. Finally an administrator will be able to let you access to the Sentinel Data Hub.

Please note that by registering in this website you are deemed to have accepted the T&C for Sentinel data use.

European Space Agency

Sentinel Data Hub (3/4)



Once completed registration you can log in , click on **Search** and start use Sentinel hub interface to search and download sentinels data .

Search criteria available:

- Draw region of interest
- Full text search
- Advanced search (prod, type, acqu, dates..)

Select product of you interest and move it in the 'Cart' by clicking The **circled red** icon



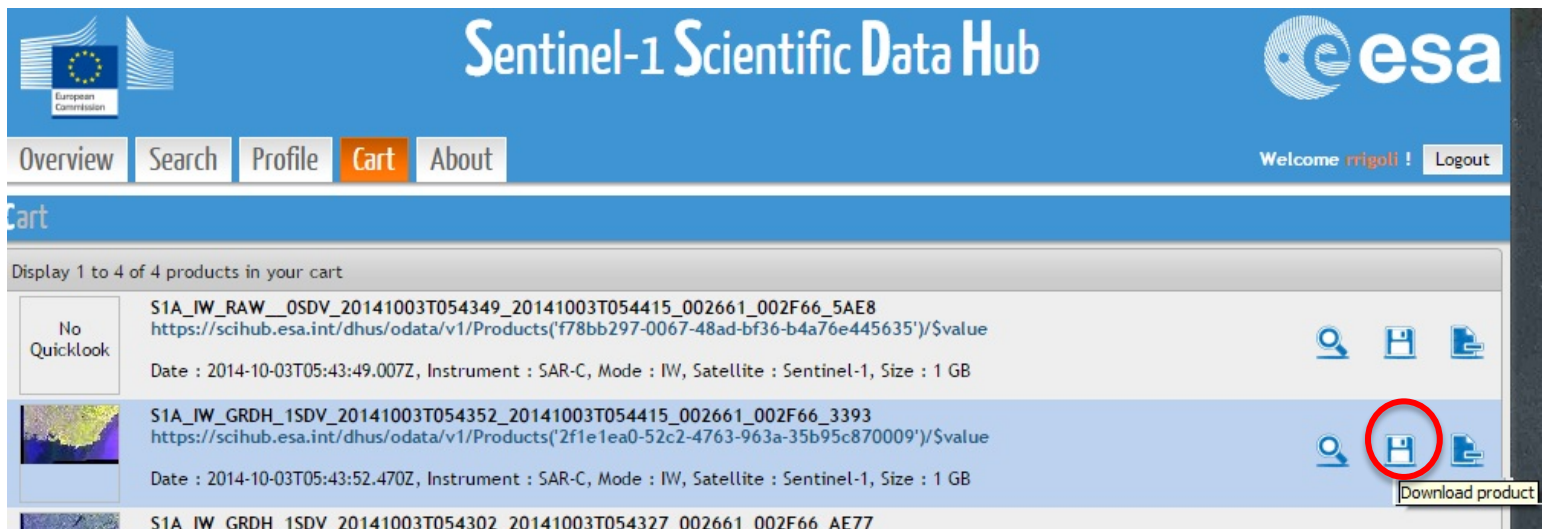
Online inspection of the searched products by browsing and pre-viewing the product metadata and measurements without downloading it. A preview panel displays information on the product contents and structure.

Sentinel Data Hub (4/4)



Once moved the product(s) of your interest, click on **Cart** to start product download.

Select product of you interest and start download by clicking the **circled red icon**



Sentinel-1 products are provided for download via HTTP in the .ZIP archive file format. Compression is not applied. Click and download, shopping cart, batch download. A maximum of 2 concurrent downloads per user is allowed in order to ensure a download capacity for all users.

Next features:

Batch scripting

Email notification (on user defined search criteria)

Advised Websites (1/3)

- ESA Principal Investigators



- **ESA Principal Investigators (PIs)**: Scientific community worldwide with on-going research projects requiring ESA and / or Third Party Mission (TPM) instruments' data
- The PI Community Webpage is the main access point for ESA and ESA TPM data
<https://earth.esa.int/web/guest/pi-community>

Advised Websites (2/3)

-Sentinel online website



- **Sentinel online website:** technical guidelines for all sentinels, news and events related ,data access info and policy,last scientific result and more... <https://sentinel.esa.int/web/sentinel/home>

The screenshot shows the Sentinel Online website homepage. The header features the ESA logo, the text 'Sentinel Online', and icons of various Sentinel satellites. A navigation bar includes links for 'Need Help?', 'Contact Us', and 'About sentinel online', along with a Google Custom Search bar. Below the navigation bar are dropdown menus for 'Missions', 'User Guides', 'Technical Guides', 'Thematic Areas', and 'Data Access'. A breadcrumb trail indicates 'You are here Home'. The main content area is divided into several sections: 'Welcome to Sentinel Online' with a large video player showing a colorful satellite image and a 'SENTINEL-1 MISSION STATUS REPORT' overlay; 'Sentinel News' with a list of recent updates; 'Events' with a list of upcoming workshops and courses; 'Browse to Other Sites' with a list of related ESA and European Commission websites; 'Sentinel Missions' with three small images of satellites; and 'Thematic Areas' with three small images of Earth from space. The footer includes the text 'European Space Agency'.

esa Sentinel Online

Need Help? Contact Us About sentinel online

Google™ Custom Search

Missions User Guides Technical Guides Thematic Areas Data Access

You are here Home

Welcome to Sentinel Online

SENTINEL-1 MISSION STATUS REPORT
The Sentinel-1 status report provides weekly updates regarding Mission Status, Satellite, Ground Segment and Mission Outlook.
[Read more](#)

Sentinel News

- Sentinel-1 data now available
- First Copernicus satellite now operational
- New toolboxes make using Sentinel data easy

Events

- 8th Coastal Altimetry Workshop
- 2nd ESA Advanced Training Course on
- POLInSAR 2015 and 1st BIOMASS Science
- ATMOS 2015 - Advances in Atmospheric

Browse to Other Sites

- EU Copernicus
- ESA Copernicus
- Observing the Earth
- Earth Online
- C SCDA
- Disasters Charter
- ESA Climate Change Initiative
- Ground Segment Coordination Body (GSCB)
- eoPortal
- Find us on Facebook
- Follow us on Twitter

Sentinel Missions

Learn more about the Sentinel missions here, with comprehensive information about mission objectives, spacecraft design, instrument payloads and data

Thematic Areas

There are many applications for the data acquired from the Sentinel missions.
The Thematic Areas expand on six main categories:

Advised Websites (3/3)

- SEOM



- **ESA SEOM website:** Scientific Exploitation Operational (including Sentinels toolboxes)
<https://http://seom.esa.int>

seom

scientific exploitation of operational missions

ESA

SEOM

OBJECTIVES

ACTION LINES

CONFERENCES

NEWS

TOOLBOX

TRAININGS

SEOM > Objectives

ESA EO

COPERNICUS

SENTINEL

NEW OPPORTUNITIES

Invitations to Tender

PARTNERS

PROJECTS

CONTACTS

The SEOM (Scientific Exploitation of Operational Missions) element:

The prime objective of the SEOM element is to federate, support and expand the large international research community that the ERS, ENVISAT and the Envelope programmes have build up over the last 20 years. It aims to further strengthen the international leadership of European Earth Observation research community by enabling them to extensively exploit observations from future European operational EO missions. This will enable the science community to address many new avenues of scientific research that will be opened by free and open access to data from operational EO missions.

The SEOM element is building on the scientific achievements of the missions like ERS and Envisat. It offers specifically tailored, timely research opportunities allowing European scientists to analyse data from European EO missions in particular from the Sentinels which follow the ERS and Envisat era and long term data sets. SEOM provides a programmatic framework to enable the EO science community of ESA member states to collectively play a leading role in international efforts.

Educational SEOM activities are focusing training next generation scientists and transferring expertise from senior European EO scientists, to a large number of younger scientists, via international training events, each typically for about 60 participants and a 1-2 two weeks duration.

SEOM continues the user consultation processes that have proven effective for ERS and Envisat research communities by convening a series of re-curent international workshops, each focusing on a relevant specialized EO thematic domain. At each workshop international EO experts will present latest results and assess the state of art in their field. They will make community-wide prioritized recommendations for actions on key research issues that can be significantly advanced by scientific analysis of data from operational missions. These recommendations will form the basis for annual work plans of SEOM.

The ensuing projects will be tendered as research opportunities for the EO science communities in ESA Member States.

seom

scientific exploitation of operational missions

INSARAP WORKSHOP

Technical Workshop on Synthetic Aperture Radar Interferometry

10-12 October 2014, ESA-ESTEC, Noordwijk, The Netherlands

INSARAP Workshop 2014

ATMOS 2015

Advances in Atmospheric Science and Applications

9-12 June 2015, University of Cologne, Cologne, Germany

ATMOS 2015

SENTINEL-3 FOR SCIENCE WORKSHOP

Advances in the Science and Applications of SAR Interferometry and Sentinel-3 SAR Workshop

2-5 June 2015, ESA-ESTEC, Noordwijk, The Netherlands

Sentinel-3 for Science Workshop 2015

FRINGE 2015 WORKSHOP

Advances in the Science and Applications of SAR Interferometry and Sentinel-3 SAR Workshop

2-5 June 2015, ESA-ESTEC, Noordwijk, The Netherlands

Fringe 2015

***Thank you
for your attention***