

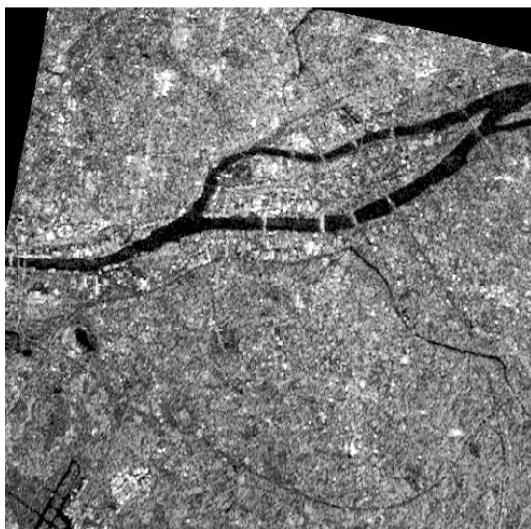
# ESA EO Data Access

## Trans-Atlantic Training 2018 (Croatia)

Amalia Castro

07/06/2018

- Overview of ERS 1&2 and ENVISAT products
- Accessing to ESA Missions (ERS & ENVISAT)
- Third-Party Mission Data Access
- Copernicus Open Access Hub: Sentinels Data Access
- Sentinels Processing: SNAP toolbox & STEP forum



## ERS-1/2 - SAR Level 1 Single Look Complex Image Product (SAR\_IMS\_1P)

### Product characteristics

<b>Pixel size</b>	8 m (range - across track) x 4 m (azimuth - along track – varying slightly depending on acquisition Pulse Repetition Frequency)
<b>Scene area</b>	100 km (range) x at least 102.5 km (azimuth)

## ERS-1/2 - SAR Level 1 Precision Image Product (SAR\_IMP\_1P)

### Product characteristics

<b>Pixel size</b>	12.5 m (range - across track) x 12.5 m (azimuth - along track)
<b>Scene area</b>	100 km (range) x at least 102.5 km (azimuth)



## ERS-1/2 - SAR Raw Image Product (SAR\_IM\_0P)

### Product characteristics

<b>Scene area</b>	100 km (range - across track) x full segment length (azimuth - along track)
<b>Scene size</b>	5616 samples (range) x full segment length (azimuth)



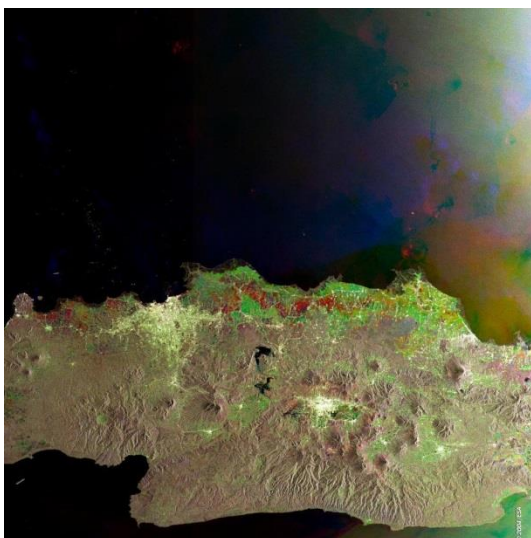


## ASAR Image Mode

ASA_IMS_1P	8m(r)x4m(a)	SLC
ASA_IMP_1P	30x30m	Multi-look, ground range
ASA_IM_0P		RAW

## ASAR Alternating Polarisation

ASA_APS_1P	8m(r)x4m(a)	SLC
ASA_APP_1P	30x30m	Multi-look, ground range
ASA_AP_0P		RAW

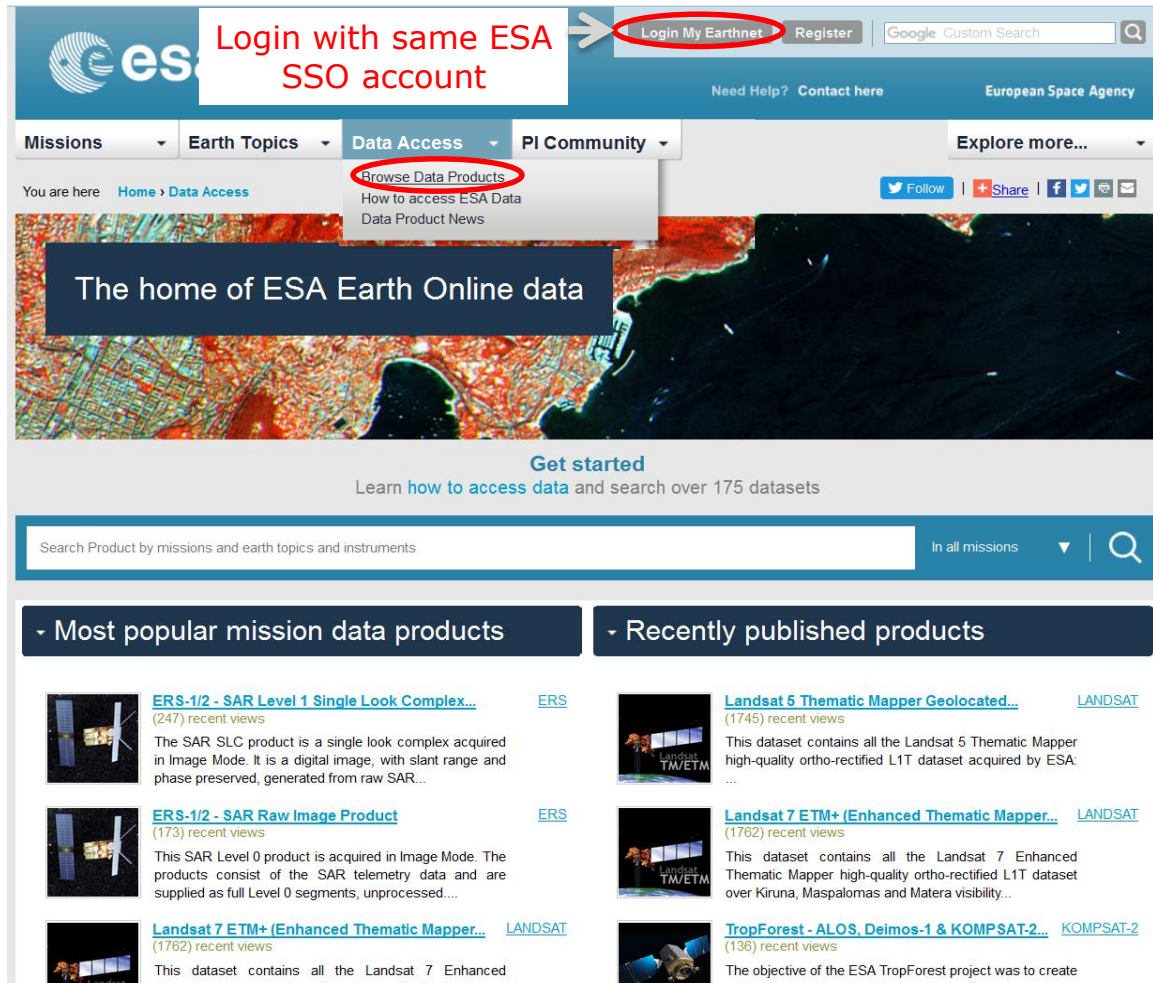


## ASAR Wide Swath

ASA_WSS_1P	8m(r)x80m(a)	SLC
ASA_WS_0P		RAW

# Accessing ESA Missions (ERS & ENVISAT)

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



The screenshot shows the ESA Earth Online data access page. A red box highlights the 'Login My Earthnet' button with the text 'Login with same ESA SSO account'. Another red box highlights the 'Browse Data Products' link in the 'Data Access' dropdown menu. The page features a header with the ESA logo, navigation tabs (Missions, Earth Topics, Data Access, PI Community), and a search bar. The main content area includes a large banner with the text 'The home of ESA Earth Online data', a 'Get started' section, and two columns of mission data products. The products listed include ERS-1/2 SAR Level 1 Single Look Complex, ERS-1/2 SAR Raw Image Product, Landsat 5 Thematic Mapper Geolocated, Landsat 7 ETM+ (Enhanced Thematic Mapper), and TropForest - ALOS, Deimos-1 & KOMPSAT-2.

## Dataset Details

### Earth Topics (Applications)

- Natural Disasters
  - Earthquake/Volcano
- Solid Earth
  - Tectonics/Seismic Activity

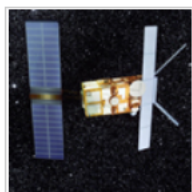
### Instrument type

- Radar Imagery

### Instrument

- SAR

### Mission



**ERS**

**Operators:**  
ESA


**Date of Launch:**  
ERS-1 - 17 July 1991  
ERS-2 - 21 April 1995

**Mission Status:**  
ERS-1 ended on March 2000  
and ERS-2 September 2011

**Orbit Height:**

## ERS-1/2 - SAR Level 1 Single Look Complex Image Product (SAR\_IMS\_1P)

ERS  
(258) recent views

 Last update: 10 April 2017

The SAR SLC product is a single look complex acquired in Image Mode. It phase preserved, generated from raw SAR data using up-to-date auxiliary for use in SAR quality assessment, calibration and interferometric applications and interpolations are performed on the data. Absolute calibration parameters are provided in the product annotation.

[➡ GET DATA](#)

Data available immediately or after data request approval (a few days, maximum of 2 weeks). PRI and SLC are quicker and level 0 takes longer...

### Product characteristics

Pixel size	8 m (range - across track) x 4 m (azimuth - along track – varying slightly depending on acquisition Pulse Repetition Frequency)
Scene area	100 km (range) x at least 102.5 km (azimuth)
Scene size	5000 samples (range) x at least 30000 lines (azimuth)
Pixel depth	32 bits signed integer (16 bits I, 16 bits Q)
Total product volume	~ 575 MB
Projection	Slant range
Number of looks	1

### Data Set Specifications

Spatial coverage: 82 N, 82 S, 180 W, 180 E  
Temporal coverage: 27-07-1991 - 04-07-2011  
Current Processor Version: PE ERS / Envisat format

Missions

Earth Topics

Data Access

PI Community

You are here [MyEarthnet](#)

Product Registration - product selection ASAR L1 products (IMP, IMS, APP, APS, WSS)

ESA Products

Satellite	Instrument	Product	#	Action
ENVISAT	ASAR (On-The-Fly)	ASAR L1 products (IMP, IMS, APP, APS, WSS)		<div>Delete</div>

Terms and Conditions acceptance

In order for ESA to give access to the dataset accessible via simple registration, the Principal investigator shall have read and accepted the Terms and Conditions for

[Terms and Conditions for the use of ESA data](#)

By checking this box I confirm my acceptance of the Terms and Conditions for the use of ESA data ☒

Back

Save

For help, refer to  
ASAR-OTF-User Manual.pdf  
&  
ASAR-OTF-FAQ.pdf

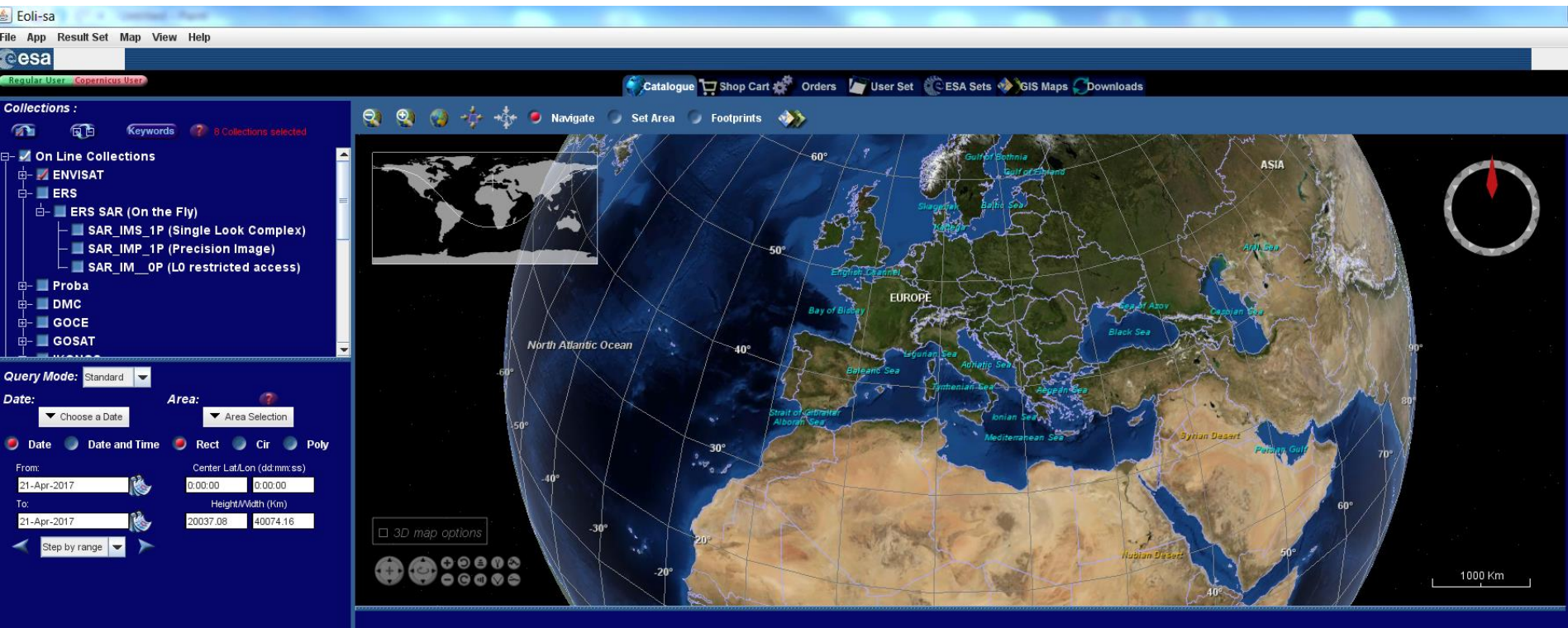


# ERS & ENVISAT Data Download



- Registration\ log in
- Acceptance of terms and conditions
- Product download through EOLI-SA client

\*\*some specific datasets (e.g RAW) are available upon positive evaluation of the data service request



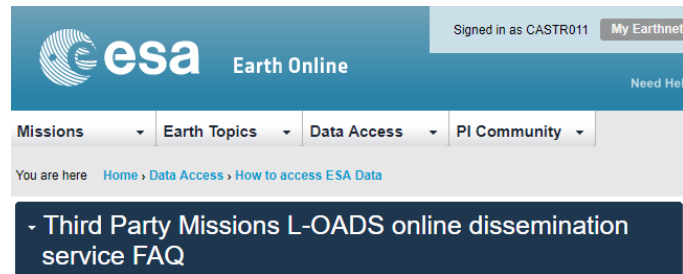


# Third Party Mission Data Access via ESA



## Online Dissemination Service:

<https://earth.esa.int/web/guest/data-access/how-to-access-eo-data/tpm-l-oads-dissemination-service-faq>



### What is the Third Party Missions L-OADS online dissemination service?

The Third Party Missions L-OADS online dissemination system allows direct access to part of ESA's archive of Third Party Missions collections. (The full list of online Third Party Missions collections is available on the [TPM online access list](#)).

From the L-OADS, products can be discovered online from:

- A geographical catalogue
- A folder tree organised by track and frame
- A filename based filtering

Once a user requests a product download, the product is downloaded immediately if the user is logged and authorised for the specific product download.

### How do I access the Third Party Missions L-OADS online dissemination service?

You should freely subscribe to the TPM collection of your interest. Please subscribe to a TPM dataset by clicking the get data button in the [dataset description](#) pages.

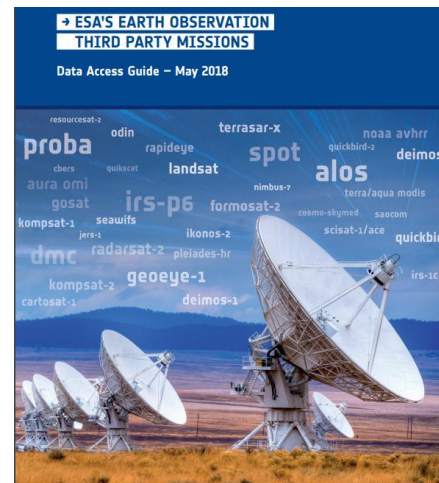
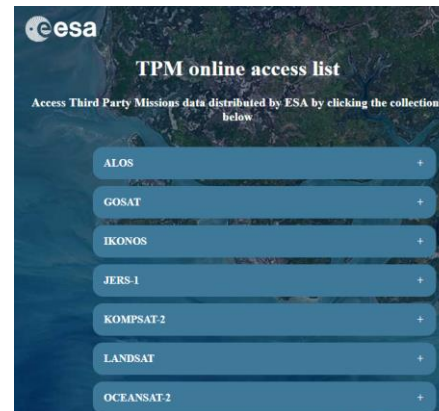
If you do not have a EO-SSO account on Earth Online, you will be requested to create an account following the [registration instructions](#).

Data are accessible through the Third Party Missions [L-OADS web interface](#).

For any additional inquiries please contact [eohelp@esa.int](mailto:eohelp@esa.int).

### How do I download a product?

Please refer to the [user manual](#).



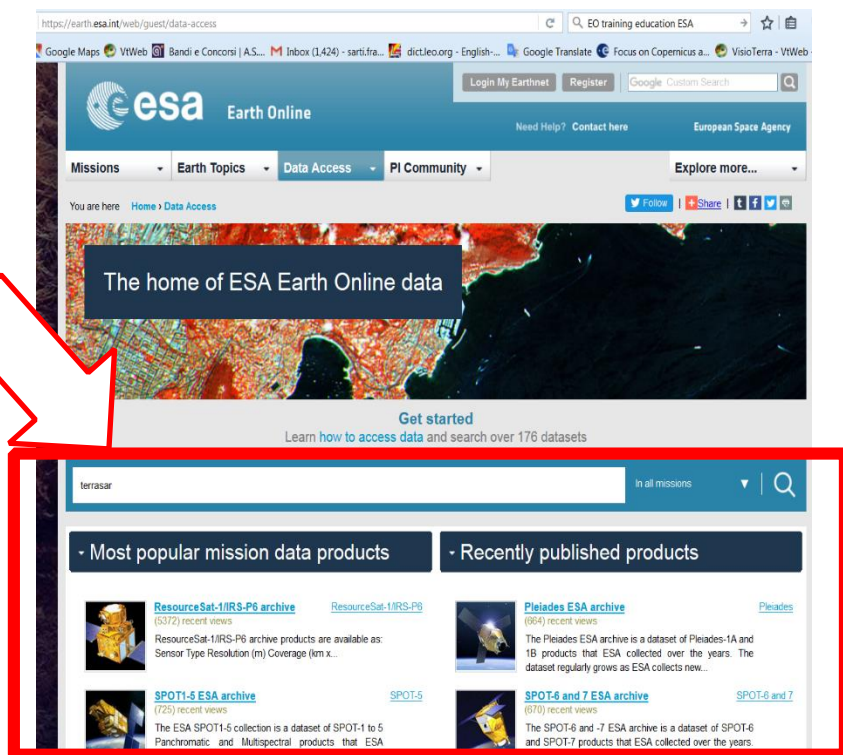
## TPM Online Access List

<https://tpm-ds.eo.esa.int/collections/>

## TPM Data Access Guide:

<https://earth.esa.int/documents/10174/1987716/Third-Party-Mission-Data-Access-Guide>

# Third Party Mission data access via ESA



The home of ESA Earth Online data

Get started  
Learn how to access data and search over 176 datasets

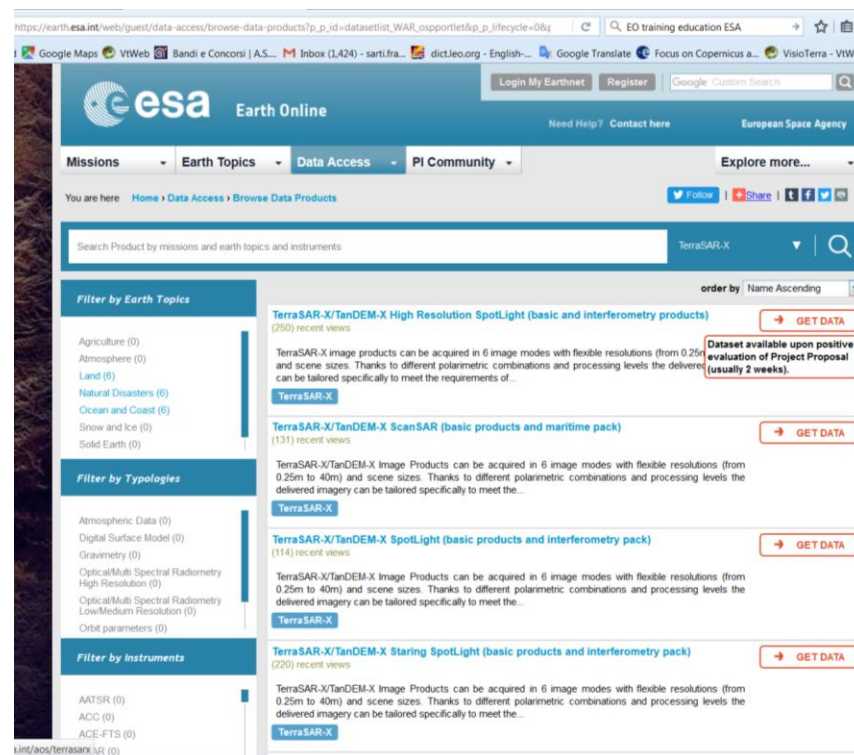
Search for: terrasat

Most popular mission data products

- ResourceSat-1/IRS-P6 archive** (5372 recent views)  
ResourceSat-1/IRS-P6 archive products are available as: Sensor Type Resolution (m) Coverage (km x...)
- SPOT-1-5 ESA archive** (725 recent views)  
The ESA SPOT-1-5 collection is a dataset of SPOT-1 to 5 Panchromatic and Multispectral products that ESA

Recently published products

- Pleiades ESA archive** (664 recent views)  
The Pleiades ESA archive is a dataset of Pleiades-1A and 1B products that ESA collected over the years. The dataset regularly grows as ESA collects new...
- SPOT-6 and 7 ESA archive** (670 recent views)  
The SPOT-6 and -7 ESA archive is a dataset of SPOT-6 and SPOT-7 products that ESA collected over the years



Search Product by missions and earth topics and instruments

Filter by Earth Topics

- Agriculture (0)
- Atmosphere (0)
- Land (0)
- Natural Disasters (6)
- Ocean and Coast (6)
- Snow and Ice (0)
- Solid Earth (0)

Filter by Typologies

- Atmospheric Data (0)
- Digital Surface Model (0)
- Gravimetry (0)
- Optical/Multi Spectral Radiometry High Resolution (0)
- Optical/Multi Spectral Radiometry Low/Medium Resolution (0)
- Orbit parameters (0)

Filter by Instruments


- AWT-SR (0)
- ACC (0)
- ACE-FTS (0)

TerraSAR-X/TanDEM-X High Resolution SpotLight (basic and interferometry products)  
(250) recent views  
TerraSAR-X image products can be acquired in 6 image modes with flexible resolutions (from 0.25m to 40m) and scene sizes. Thanks to different polarimetric combinations and processing levels the delivered imagery can be tailored specifically to meet the requirements of...  
GET DATA  
Dataset available upon positive evaluation of Project Proposal (usually 2 weeks).

TerraSAR-X/TanDEM-X ScanSAR (basic products and maritime pack)  
(131) recent views  
TerraSAR-X/TanDEM-X Image Products can be acquired in 6 image modes with flexible resolutions (from 0.25m to 40m) and scene sizes. Thanks to different polarimetric combinations and processing levels the delivered imagery can be tailored specifically to meet the...  
GET DATA

TerraSAR-X/TanDEM-X SpotLight (basic products and interferometry pack)  
(114) recent views  
TerraSAR-X/TanDEM-X Image Products can be acquired in 6 image modes with flexible resolutions (from 0.25m to 40m) and scene sizes. Thanks to different polarimetric combinations and processing levels the delivered imagery can be tailored specifically to meet the...  
GET DATA

TerraSAR-X/TanDEM-X Staring SpotLight (basic products and interferometry pack)  
(220) recent views  
TerraSAR-X/TanDEM-X Image Products can be acquired in 6 image modes with flexible resolutions (from 0.25m to 40m) and scene sizes. Thanks to different polarimetric combinations and processing levels the delivered imagery can be tailored specifically to meet the...  
GET DATA


**Earth Online**

Signed in as CASTR011
My Earthnet
Logout
Google Custom Search

Need Help?
Contact here
European Space Agency

Missions
Earth Topics
Data Access
**PI Community**
Explore more...

You are here
Home
PI Community
Apply for Data
3rd Party

Follow
Share
f
t
g
e

### Third Party Missions

#### Welcome to the Deimos-1&2 Information area

ESA is offering **free of charge**, for scientific research and application development, access to **Full archive and New Tasking** Deimos-1 and 2 data.

The *Deimos-1* products are available in *L1R (Geo Positioned)* and *L1T (Orthorectified)*. The *Deimos-2* in *L1B (native)* and *L1C (orthorectified)* as:

- Pan Sharpened
- Panchromatic
- Multispectral
- Bundle
- Stereo Pair


ESA will support as many high-quality and innovative projects as possible within the quota limit available, therefore **only a limited amount of products can be made available to each project**.

Availability and restrictions to the use of the above data is described in the ESA TPM T&C and in the Terms of applicability document linked below.

- More information about Deimos-1
- More information about Deimos-1 Products
- More information about Deimos-2
- More information about Deimos-2 Products
- Terms of applicability
- Terms and Conditions for the utilization of ESA Third Party Missions Data
- Guidelines for the submission
- Submit a proposal

Additional information:

- Access to Deimos-1 &2 data , as part of this ESA TPM initiative, is subject to acceptance of the project proposal submitted to ESA ( link above) to which,



### PI Community

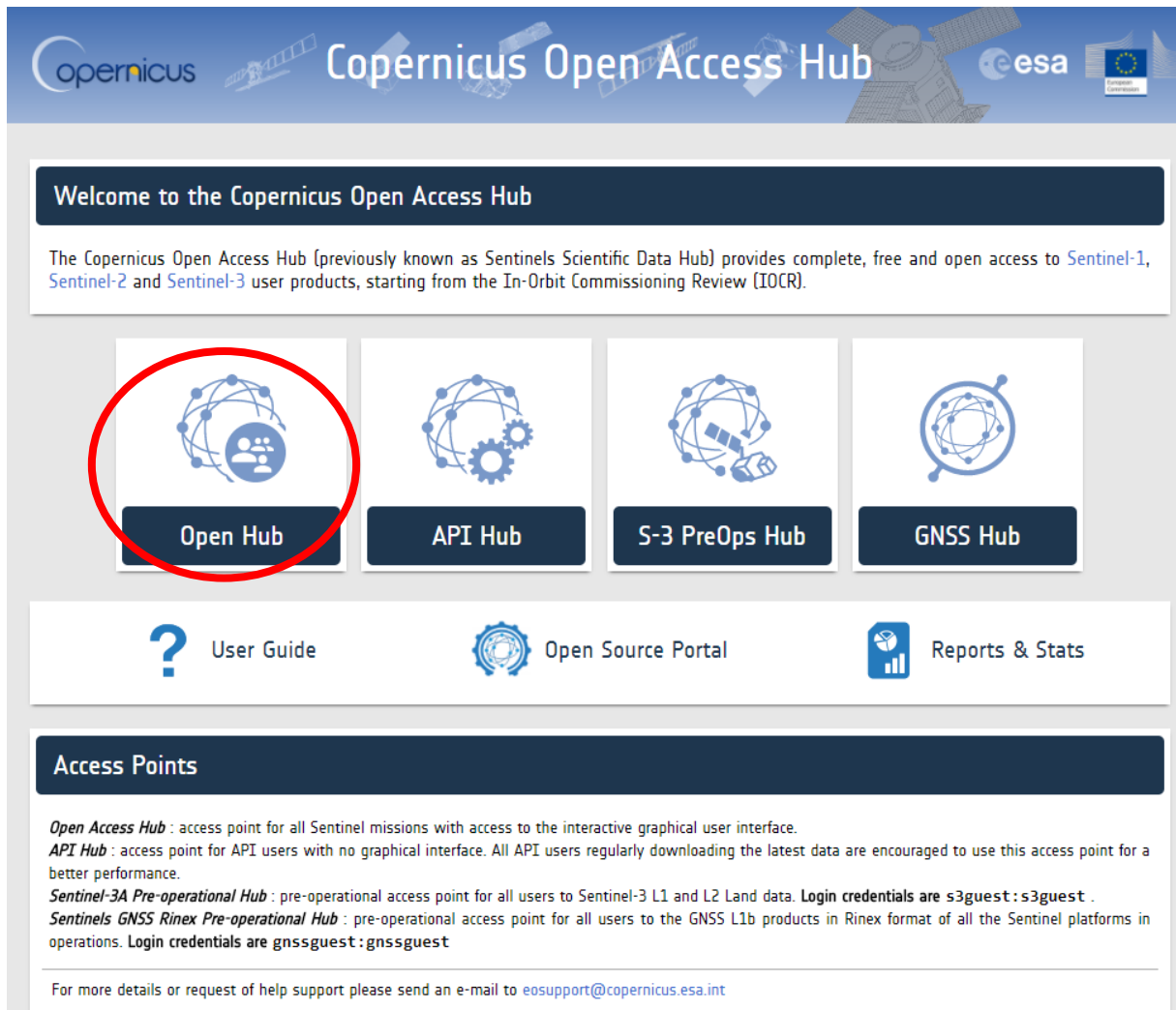
- PI Community Home
- Results
- Search Results and Projects
- Apply for Data
  - Fast Registration
  - Full Proposal
  - Service Request
- Campaigns
- AO's
- 3rd Party**
- Toolboxes
- Training
- Events
- News
- MyEarthnet

### Related Content

- List of free datasets
- ESA T&C
- ESA data Policy
- TPM T&C
- EOLI-SA Catalogue
- Other Catalogues



<https://scihub.copernicus.eu/>



The screenshot shows the Copernicus Open Access Hub website. At the top, there is a blue header with the Copernicus logo, the text 'Copernicus Open Access Hub', the ESA logo, and the European Union flag. Below the header, a dark blue banner reads 'Welcome to the Copernicus Open Access Hub'. A paragraph follows, stating: 'The Copernicus Open Access Hub (previously known as Sentinels Scientific Data Hub) provides complete, free and open access to Sentinel-1, Sentinel-2 and Sentinel-3 user products, starting from the In-Orbit Commissioning Review (IOCR)'. Below this, there are four white boxes with blue icons and labels: 'Open Hub' (circled in red), 'API Hub', 'S-3 PreOps Hub', and 'GNSS Hub'. Further down, there are three white boxes with blue icons and labels: 'User Guide', 'Open Source Portal', and 'Reports & Stats'. At the bottom, a dark blue banner reads 'Access Points'. Below this, there are four paragraphs of text describing the access points: 'Open Access Hub', 'API Hub', 'Sentinel-3A Pre-operational Hub', and 'Sentinels GNSS Rinex Pre-operational Hub'. At the very bottom, a line of text says: 'For more details or request of help support please send an e-mail to [eosupport@copernicus.esa.int](mailto:eosupport@copernicus.esa.int)'.

Welcome to the Copernicus Open Access Hub

The Copernicus Open Access Hub (previously known as Sentinels Scientific Data Hub) provides complete, free and open access to Sentinel-1, Sentinel-2 and Sentinel-3 user products, starting from the In-Orbit Commissioning Review (IOCR).

**Open Hub** **API Hub** **S-3 PreOps Hub** **GNSS Hub**

**? User Guide** **Open Source Portal** **Reports & Stats**

**Access Points**

**Open Access Hub** : access point for all Sentinel missions 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-3A Pre-operational Hub** : pre-operational access point for all users to Sentinel-3 L1 and L2 Land data. **Login credentials are s3guest:s3guest**.

**Sentinels GNSS Rinex Pre-operational Hub** : pre-operational access point for all users to the GNSS L1b products in Rinex format of all the Sentinel platforms in operations. **Login credentials are gnssguest:gnssguest**


For more details or request of help support please send an e-mail to [eosupport@copernicus.esa.int](mailto:eosupport@copernicus.esa.int)




# Copernicus Open Access Hub

[SIGN UP](#)
[LOGIN](#)
[?](#)
[↑](#)





[Pan](#)
[Box](#)
[Polygon](#)
[Clear](#)



**Copernicus Open Access Hub**

SIGN UP LOGIN ? Home

Insert search criteria...

**Advanced Search** Clear

- » Sort By: Ingestion Date ▼
- » Order By: Descending ▼
- » Sensing period From: [calendar icon] to: [calendar icon]
- » Ingestion period From: [calendar icon] to: [calendar icon]



☒ Mission: Sentinel-1

Satellite Platform [dropdown menu]	Product Type [dropdown menu]
Polarisation [dropdown menu]	Sensor Mode [dropdown menu]
Relative Orbit Number (from 1 to 175) [text input]	Collection [dropdown menu]




☐ Mission: Sentinel-2


[Pan] [Box] [Polygon] [Clear]




Copernicus Open Access Hub



Display 1 to 25 of 37 products.

Order By: Sensing Date ↑


Select All 

**Request Done:** ( footprint:"Intersects(POLYGON((15.649140851073959

45.614872524885556,16.38534373717565

45.614872524885556,16.38534373717565

S1B SAR-C




S1B\_IW\_GRDH\_1SDV\_20180501T050937\_20180501T051002\_010...

Download URL: <https://scihub.copernicus.eu/dhus/odata/v1/Products/'0976>

Mission: Sentinel-1 Instrument: SAR-C Sensing Date: 2018-05-01T05:09:

S1B SAR-C




S1B\_IW\_GRDH\_1SDV\_20180501T051002\_20180501T051027\_010...

Download URL: <https://scihub.copernicus.eu/dhus/odata/v1/Products/'92d6>

Mission: Sentinel-1 Instrument: SAR-C Sensing Date: 2018-05-01T05:10:

S1A SAR-C




S1A\_IW\_GRDH\_1SDV\_20180502T050223\_20180502T050248\_021...

Download URL: <https://scihub.copernicus.eu/dhus/odata/v1/Products/'4e77>

Mission: Sentinel-1 Instrument: SAR-C Sensing Date: 2018-05-02T05:02:

S1A SAR-C




S1A\_IW\_GRDH\_1SDV\_20180503T164956\_20180503T165021\_021...

Download URL: <https://scihub.copernicus.eu/dhus/odata/v1/Products/'cfe6>

Mission: Sentinel-1 Instrument: SAR-C Sensing Date: 2018-05-03T16:49:

S1A SAR-C




S1A\_IW\_GRDH\_1SDV\_20180503T165021\_20180503T165046\_021...

Download URL: <https://scihub.copernicus.eu/dhus/odata/v1/Products/'3286>

25 ▾

<< < page: 1 of 2 > >>

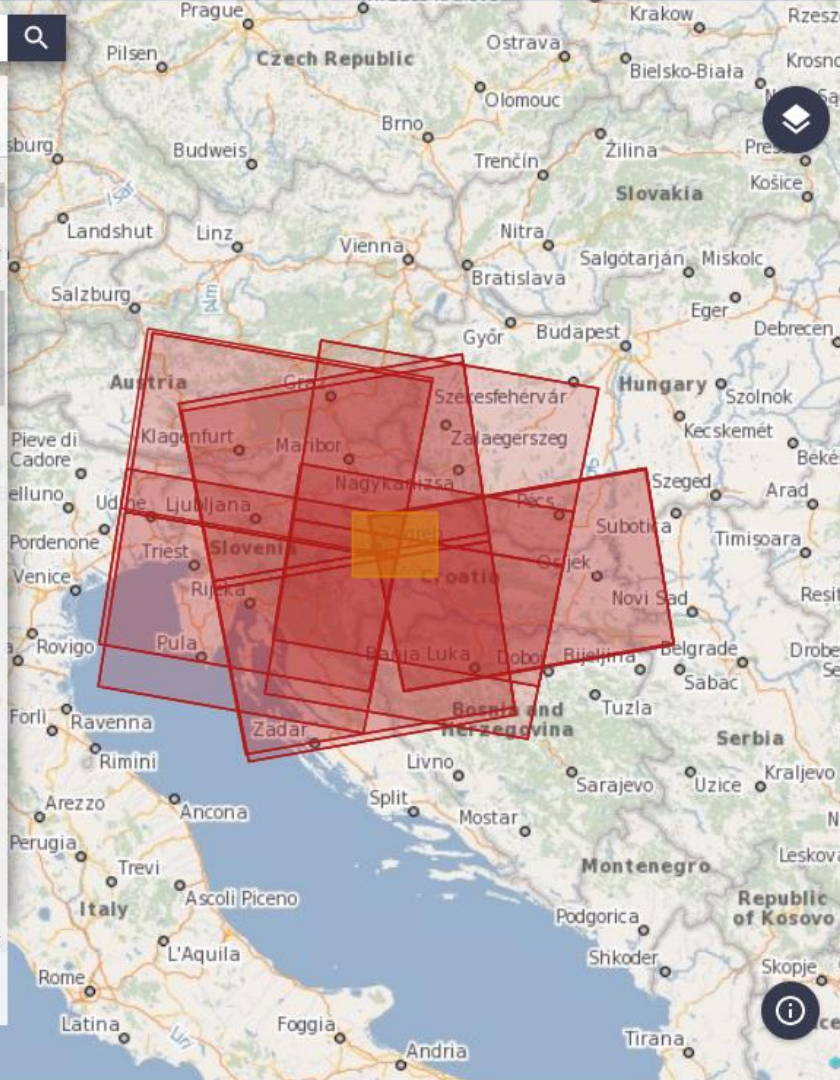
 CLOSE

Pan

Box

Polygon

Clear





step  
science toolbox exploitation platform

ESA STEP TOOLBOXES DOWNLOAD GALLERY DOCUMENTATION COMMUNITY THIRD PARTY PLUGINS

· SNAP  
· Sentinel 1 Toolbox  
· Sentinel 2 Toolbox  
· Sentinel 3 Toolbox  
· SMOS Toolbox  
· Download  
· Community  
· Useful Links

Home > Scientific Toolbox Exploitation Platform

## multimission scientific toolboxes

ESA is developing **free open source toolboxes** for the scientific exploitation of **Earth Observation missions** under the the Scientific Exploitation of Operational Missions (SEOM) programme element. **STEP** is the **ESA community platform** for accessing the software and its documentation, communicating with the developers, dialoguing within the science community, promoting results and achievements as well as providing tutorials and material for training scientists using the Toolboxes.

The ESA toolboxes support the **scientific exploitation** for the **ERS-ENVISAT** missions, the **Sentinels 1/2/3** missions and a range of **National** and **Third Party** missions. The three toolboxes are called respectively Sentinel 1, 2 and 3 Toolboxes and share a common architecture called **SNAP**. They contain some functionalities of historical toolboxes such as BEAM, NEST and Orfeo Toolbox that were developed over the last years.

SNAP Features Download Tutorials Community

Search...

seom  
scientific exploitation of operational missions

2017

ESA POLInSAR 2017 Workshop

2016

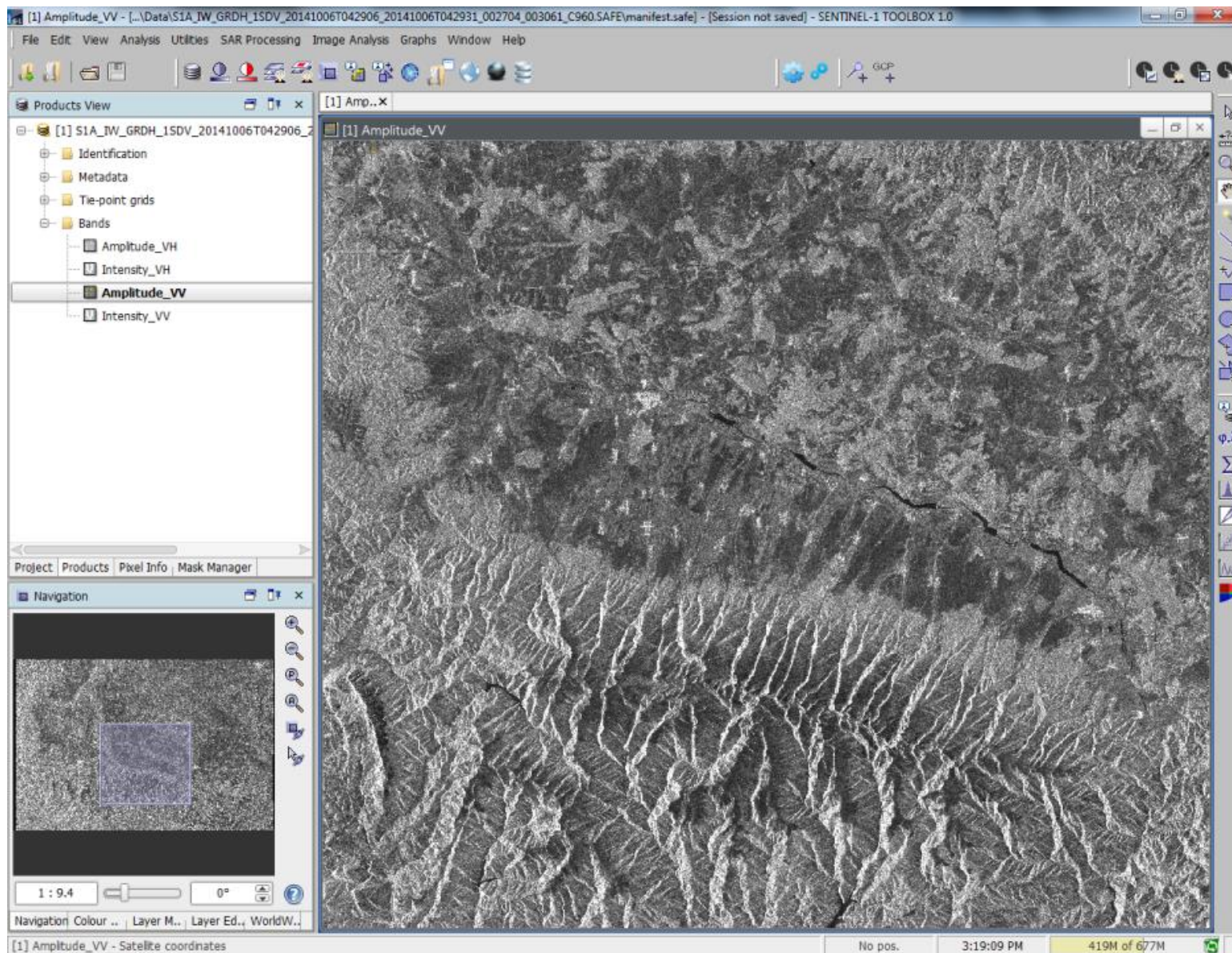
Colour and Light in the Ocean from Earth Observation

EO OPEN SCIENCE 2016

Earth Observation Open Science 2016 Conference

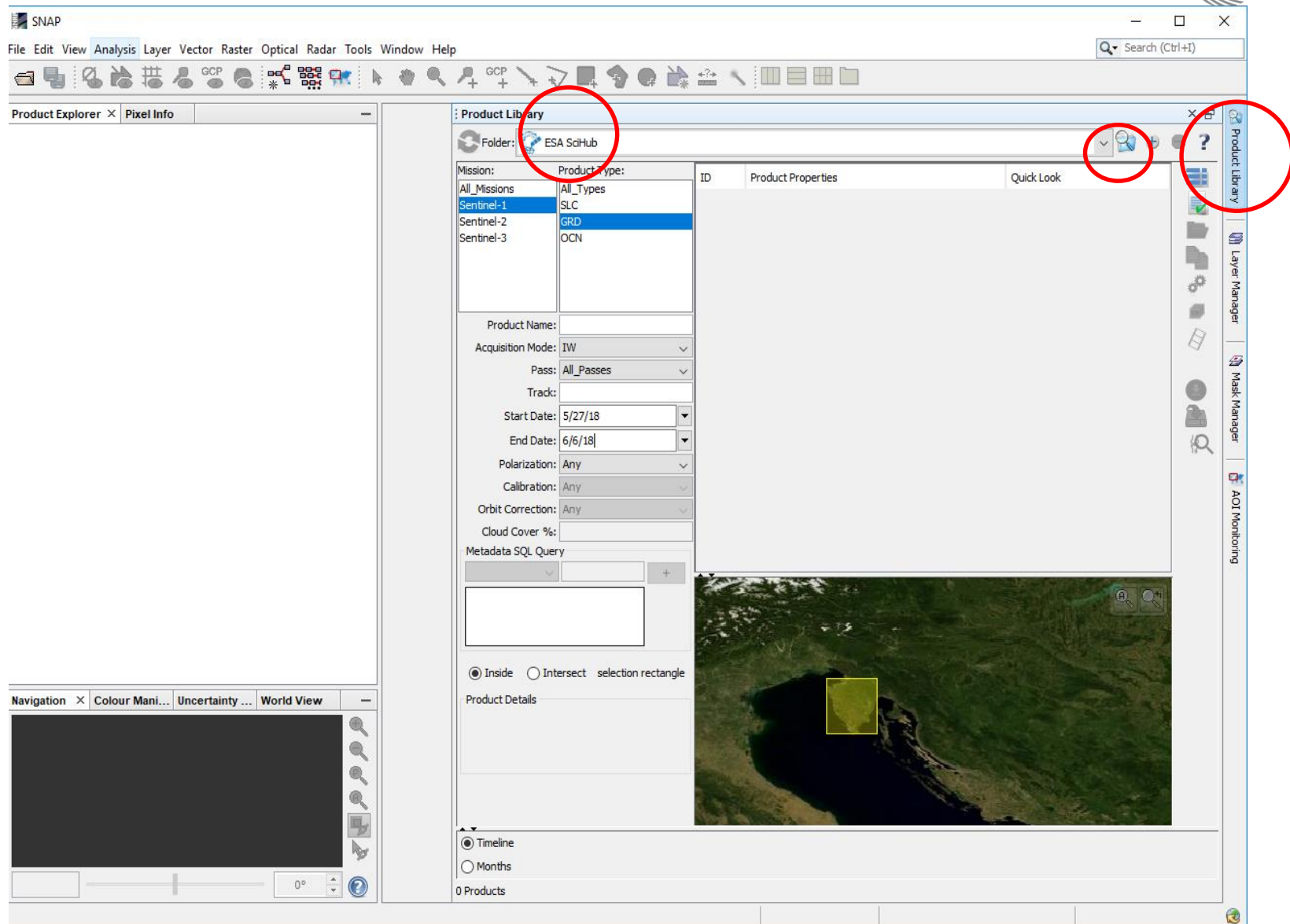


# SNAP Toolbox: Sentinel 1 toolbox

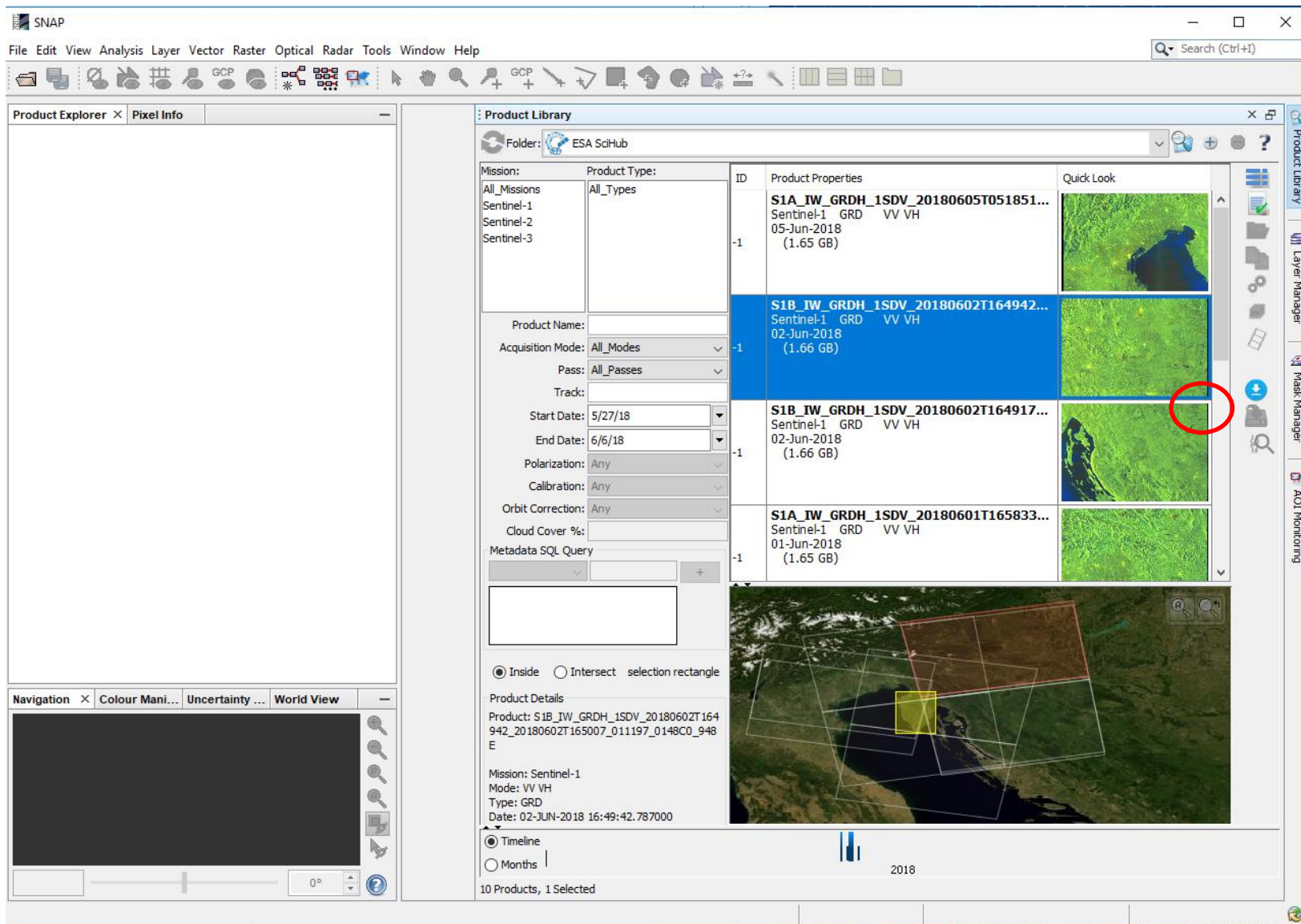




# SNAP Toolbox: The Product Library



# SNAP Toolbox: The Product Library



**Product Explorer** × Pixel Info

**Product Library**

Folder: ESA SciHub

Mission:	Product Type:	ID	Product Properties	Quick Look
All_Missions	All_Types			
Sentinel-1				
Sentinel-2				
Sentinel-3				

Product Name:

Acquisition Mode: All\_Modes

Pass: All\_Passes

Track:

Start Date: 5/27/18

End Date: 6/6/18

Polarization: Any

Calibration: Any

Orbit Correction: Any

Cloud Cover %:

Metadata SQL Query:

☒ Inside ☐ Intersect selection rectangle

Product Details

Product: S1B\_IW\_GRDH\_1SDV\_20180602T164942\_20180602T165007\_011197\_0148CD\_948E

Mission: Sentinel-1

Mode: VV VH

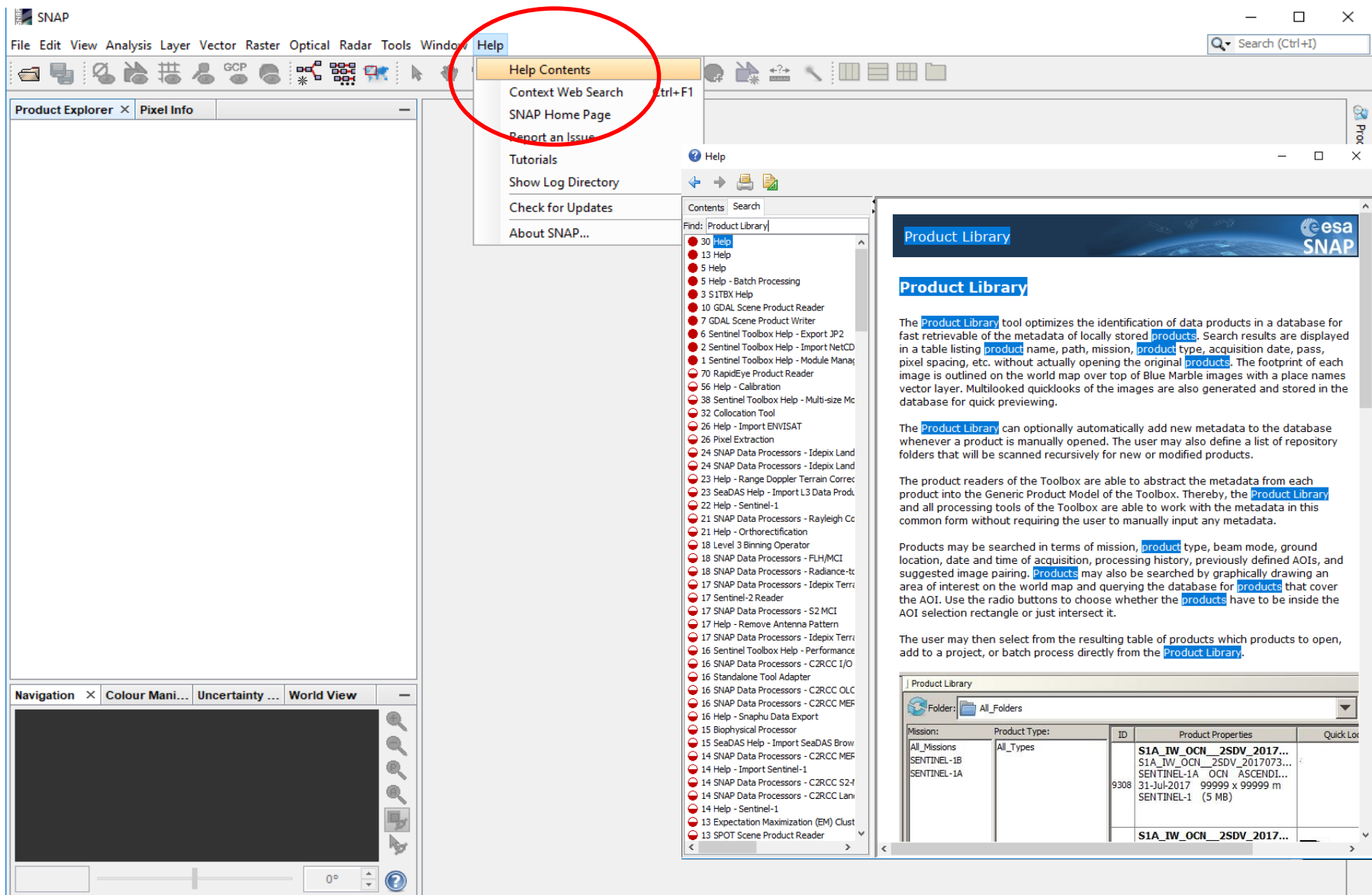
Type: GRD

Date: 02-JUN-2018 16:49:42.787000

☒ Timeline ☐ Months

10 Products, 1 Selected

# SNAP Toolbox: The Product Library



The screenshot displays the SNAP Toolbox interface. The 'Help' menu is open, with 'Help Contents' circled in red. The 'Product Explorer' panel on the left shows 'Pixel Info'. The 'Help' window is open, displaying the 'Product Library' section. The 'Product Library' window shows a table of products with columns for Mission, Product Type, ID, Product Properties, and Quick Look.

**Product Library**

The **Product Library** tool optimizes the identification of data products in a database for fast retrievable of the metadata of locally stored **products**. Search results are displayed in a table listing **product** name, path, mission, **product** type, acquisition date, pass, pixel spacing, etc. without actually opening the original **products**. The footprint of each image is outlined on the world map over top of Blue Marble images with a place names vector layer. Multilooked quicklooks of the images are also generated and stored in the database for quick previewing.

The **Product Library** can optionally automatically add new metadata to the database whenever a product is manually opened. The user may also define a list of repository folders that will be scanned recursively for new or modified products.

The product readers of the Toolbox are able to abstract the metadata from each product into the Generic Product Model of the Toolbox. Thereby, the **Product Library** and all processing tools of the Toolbox are able to work with the metadata in this common form without requiring the user to manually input any metadata.

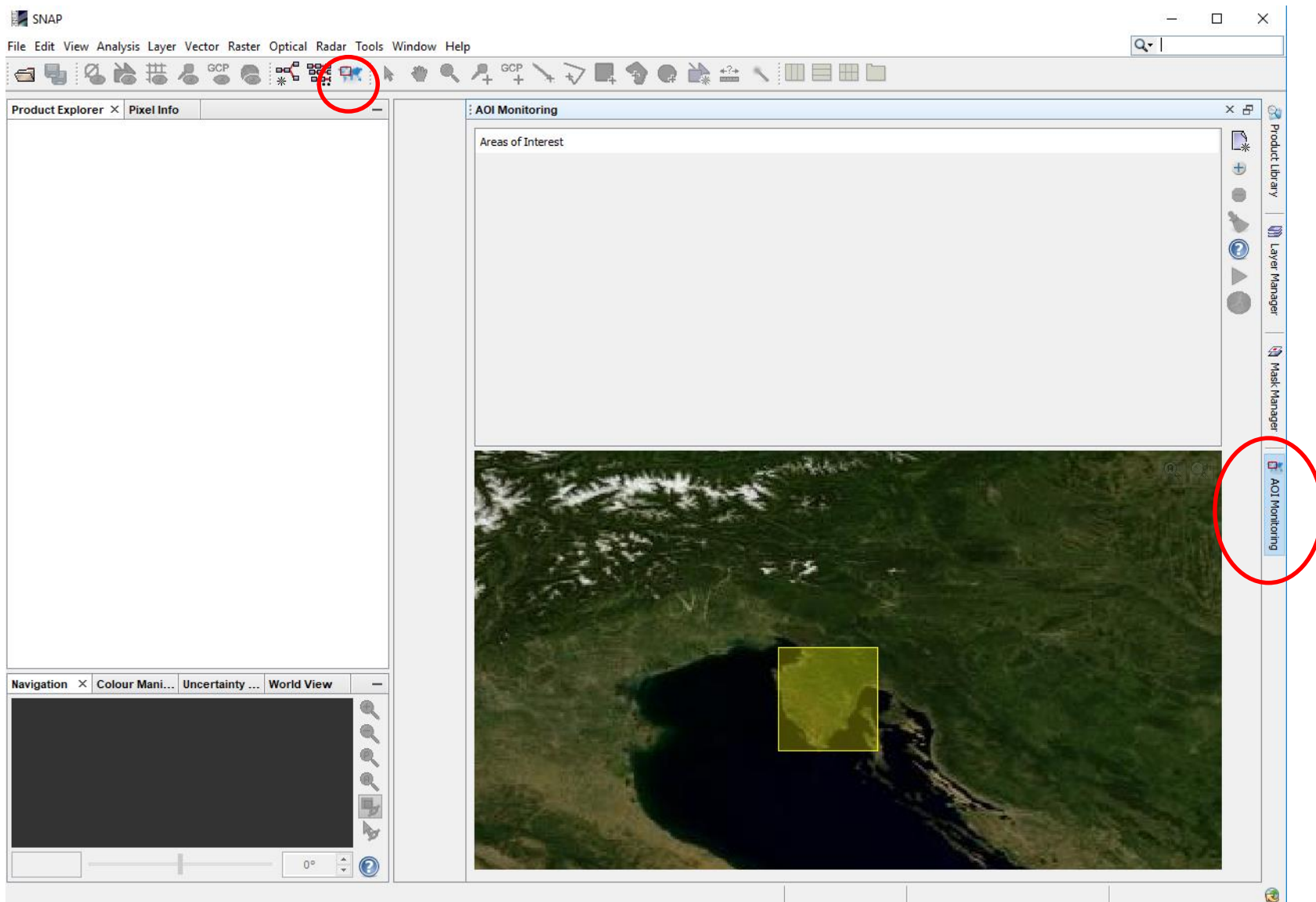
Products may be searched in terms of mission, **product** type, beam mode, ground location, date and time of acquisition, processing history, previously defined AOIs, and suggested image pairing. **Products** may also be searched by graphically drawing an area of interest on the world map and querying the database for **products** that cover the AOI. Use the radio buttons to choose whether the **products** have to be inside the AOI selection rectangle or just intersect it.

The user may then select from the resulting table of products which products to open, add to a project, or batch process directly from the **Product Library**.

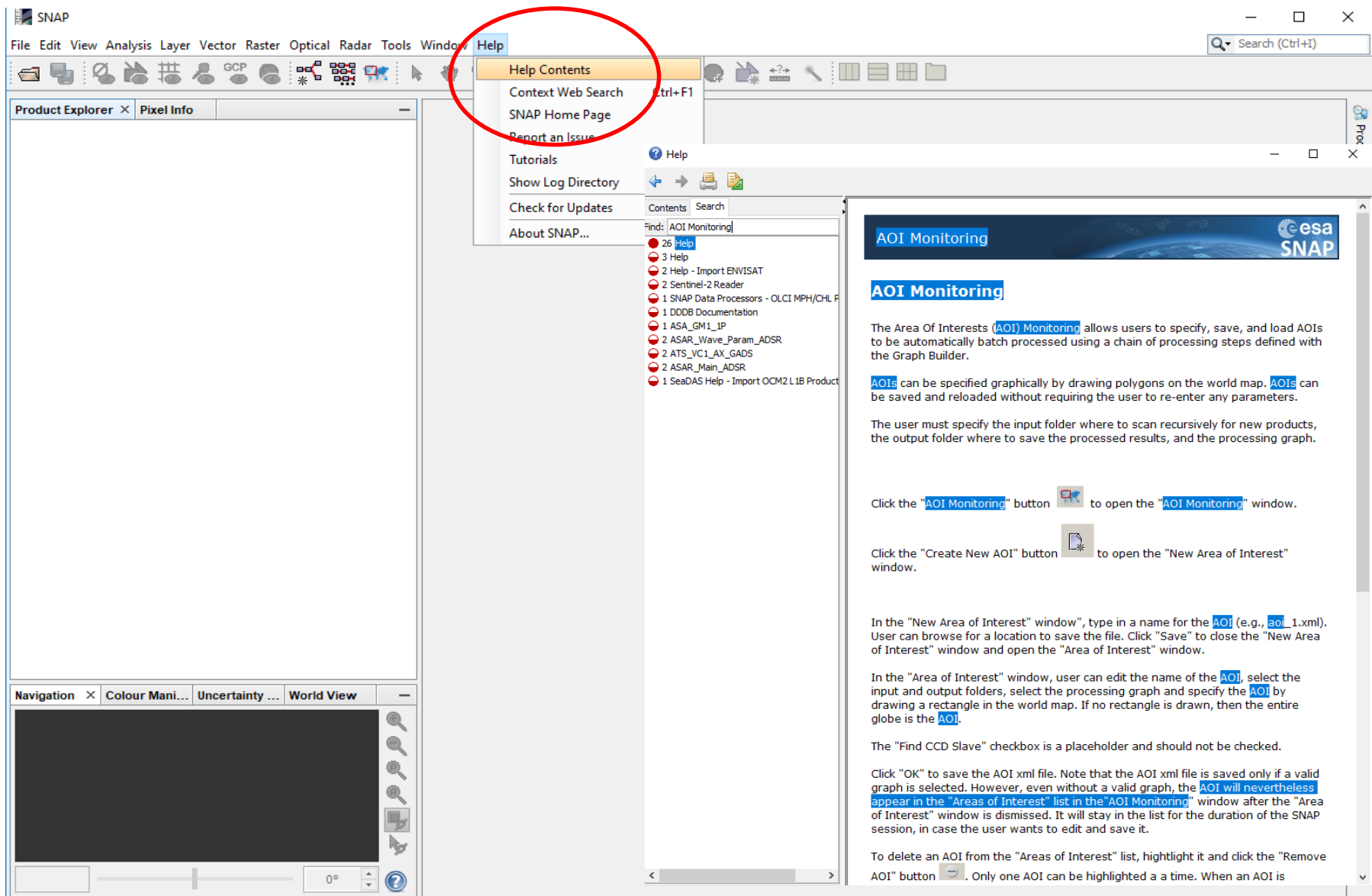
Mission	Product Type	ID	Product Properties	Quick Look
All_Missions	All_Types		S1A_IW_OCN_2SDV_2017...	
SENTINEL-1B			S1A_IW_OCN_2SDV_2017073...	
SENTINEL-1A		9308	31-Jul-2017 99999 x 99999 m SENTINEL-1 (5 MB)	
			S1A_IW_OCN_2SDV_2017...	



# SNAP Toolbox: AOI Monitoring



# SNAP Toolbox: AOI Monitoring




The screenshot displays the SNAP software interface. The 'Help' menu is open, with 'Help Contents' highlighted. The 'Help Contents' window shows a search for 'AOI Monitoring' with results including '26 Help', '3 Help', '2 Help - Import ENVISAT', '2 Sentinel-2 Reader', '1 SNAP Data Processors - OLCI MPH/CHL P', '1 DDBB Documentation', '1 ASA\_GM1\_IP', '2 ASAR\_Wave\_Param\_ADSR', '2 ATS\_VC1\_AX\_GADS', '2 ASAR\_Main\_ADSR', and '1 SeaDAS Help - Import OCM2 L1B Product'. The 'AOI Monitoring' window is also open, showing the 'AOI Monitoring' button and the 'Create New AOI' button. The 'AOI Monitoring' window contains the following text:


**AOI Monitoring**

The Area Of Interests (AOI) Monitoring allows users to specify, save, and load AOIs to be automatically batch processed using a chain of processing steps defined with the Graph Builder.

AOIs can be specified graphically by drawing polygons on the world map. AOIs can be saved and reloaded without requiring the user to re-enter any parameters.

The user must specify the input folder where to scan recursively for new products, the output folder where to save the processed results, and the processing graph.

Click the "AOI Monitoring" button  to open the "AOI Monitoring" window.


Click the "Create New AOI" button  to open the "New Area of Interest" window.

In the "New Area of Interest" window, type in a name for the AOI (e.g., AOI\_1.xml). User can browse for a location to save the file. Click "Save" to close the "New Area of Interest" window and open the "Area of Interest" window.

In the "Area of Interest" window, user can edit the name of the AOI, select the input and output folders, select the processing graph and specify the AOI by drawing a rectangle in the world map. If no rectangle is drawn, then the entire globe is the AOI.

The "Find CCD Slave" checkbox is a placeholder and should not be checked.

Click "OK" to save the AOI xml file. Note that the AOI xml file is saved only if a valid graph is selected. However, even without a valid graph, the AOI will nevertheless appear in the "Areas of Interest" list in the "AOI Monitoring" window after the "Area of Interest" window is dismissed. It will stay in the list for the duration of the SNAP session, in case the user wants to edit and save it.

To delete an AOI from the "Areas of Interest" list, highlight it and click the "Remove AOI" button . Only one AOI can be highlighted at a time. When an AOI is

Thank you!

Any Questions?