

ICIMOD



DAY 1 Exercise 1 Download SAR Data and Software Installation

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How to get SAR data free?

Step

1

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

The image shows a screenshot of the Copernicus Open Access Hub website. Step 1 points to the URL <https://scihub.copernicus.eu/>. Step 2 points to the 'Open Hub' button in the navigation menu. Step 3 points to the 'Please login to access our services...' button in the top right corner of the page. The page content includes a welcome message, information about Sentinel data access, and a navigation menu with buttons for 'Open Hub', 'API Hub', 'S-5P Pre-Ops', and 'POD Hub'. A world map is visible in the background of the page.

3 Click here

2



How to get SAR data free?

Advanced Search

Sort By: Ingestion Date (Descending)
Order By: Descending

Sensing period: [] []
Ingestion period: [] []

Mission: Sentinel-1

Satellite Platform: [] Product Type: []
Polarisation: [] Sensor Mode: []
Relative Orbit Number (from 1 to 175): []

Mission: Sentinel-2

Satellite Platform: [] Product Type: []
Relative Orbit Number (from 1 to 143): [] Cloud Cover % (e.g. 0 TO 9.4): []

Mission: Sentinel-3

Satellite Platform: [] Product Type: []

- Raw Level 0 data
- Processed Level 1 Single Look Complex (SLC) data:
 - Complex images with phase and amplitude of specified areas
- Ground Range Detected (GRD) Level 1 data:
 - Only systematically distributed multi-looked intensity
- Level 2 Ocean (OCN) data:
 - Systematically distributed data of ocean's geophysical parameters

- Strip Map (SM) Mode features 5-by-5-metre (16 by 16 ft) spatial resolution and an 80 km (50 mi) swath.
 - The sole uses of SM are to monitor small islands as well as emergency management for extraordinary events upon request
 - Offers data products in single (HH or VV) or double (HH + HV or VV + VH) polarization
- Interferometric Wide Swath (IW) Mode features 5-by-20-metre (16 by 66 ft) spatial resolution and a 250 km (160 mi) swath.
 - IW is the main operational mode over land
 - IW accomplishes interferometry through burst synchronization
 - Offers data products in single (HH or VV) or double (HH + HV or VV + VH) polarization
- Extra Wide Swath (EW) Mode features 20-by-40-metre (66 by 131 ft) spatial resolution and a 400 km (250 mi) swath.
 - EW is used mainly to monitor wide coastal areas for phenomena such as shipping traffic and potential environmental hazards like oil spills or changes in sea ice.
 - Offers data products in single (HH or VV) or double (HH + HV or VV + VH) polarization
- Wave (WV) Mode features 5-by-20-metre (16 by 66 ft) resolution and a low data rate. It produces 20 by 20 km (12 by 12 mi) sample images along the orbit at intervals of 100 km (62 m).

 - This is the main operational mode over open ocean.
 - Offers data products only in single (HH or VV) polarization

How to get SAR data free?

The screenshot shows the Copernicus Open Access Hub interface. At the top, there are logos for the European Union, ESA, and Copernicus. The main header reads "Copernicus Open Access Hub". Below this is a search bar with the placeholder text "Insert search criteria...". A notification states "Your cart contains 1 products. Display 1 to 1 of 1 products." A product card is visible with the following details: "S1A SAR-C S1A_IW_GRDH_1SDV_20171222T235533_20171222T235558_019822_021B82_2F5F". The product is marked as "Offline". A modal window is open over the product card, displaying the following information: "Status: PENDING", "Order Id: S1_OFFLINE-ffd6626c-2513-4a31-8917-efdce799ce0a", and "Submission Time: 2022-03-04T06:20:54.203". A red box highlights the product card and the modal window. A red arrow points from the "Offline" status to the modal window.

<https://forum.step.esa.int/t/esa-copernicus-data-access-long-term-archive-and-its-drawbacks/15394>

ESA Copernicus data access - Long Term Archive and its drawbacks

Dear SNAP users and developers,

If you are interesting in time-series by far or not, you probably faced the problem of **offline products**.

As a reminder,

Following the recent upgrades to the Data Hub dissemination points we are pleased to announce that the Long Term Archive (LTA) Access interfaces are ready to be operated, part of the nominal regime to ensure the continued access to all Sentinel Data at all time.

Access to the product URL for data that are no longer available online will automatically trigger the retrieval of the data from the LTA, the actual download may be initiated once the data are restored (within minutes to hours).

By trying to download an offline image, we trigger its reactivation following the rules:

Access to the product URL for data that are no longer available online will automatically trigger the retrieval from the LTA. The actual download can be initiated by the user once the data are restored (within 24 hours).

A user quota on the maximum number of requests per hour per user is set.

Products restored from the long term archives are kept online for a period of at least 3 days. Quota and keeping time will be fine tuned according to the usage patterns to ensure efficient access to the most recent and frequently downloaded data.



How to get SAR data free?



View Volume (D:) > ICIMOD > TO do > 2019 > SAR training_Afghanistan > Exercise_2019 > MW_Data_Sentinel > 2017 > Kabul > Ascending >

Name	Date modified	Type	Size
S1A_IW_GRDH_1SDV_20170208T132115_20170208T132140_015193_018DF5_C491.zip	3/29/2019 11:46 A...	Compressed (zipp...	999,619 KB
S1A_IW_GRDH_1SDV_20170220T132115_20170220T132140_015368_019366_5B47.zip	3/29/2019 11:43 A...	Compressed (zipp...	1,002,561 ...
S1A_IW_GRDH_1SDV_20170304T132115_20170304T132140_015543_0198B0_C84F.zip	3/29/2019 2:37 PM	Compressed (zipp...	999,347 KB
S1A_IW_GRDH_1SDV_20170316T132115_20170316T132140_015718_019DEA_7289.zip	3/29/2019 2:32 PM	Compressed (zipp...	996,439 KB
S1A_IW_GRDH_1SDV_20170328T132116_20170328T132141_015893_01A328_7FB9.zip	3/29/2019 3:30 PM	Compressed (zipp...	995,279 KB
S1A_IW_GRDH_1SDV_20170409T132116_20170409T132141_016068_01A866_2B89.zip	3/29/2019 6:48 PM	Compressed (zipp...	995,949 KB
S1A_IW_GRDH_1SDV_20170421T132117_20170421T132142_016243_01ADC1_944F.zip	3/29/2019 8:11 PM	Compressed (zipp...	998,186 KB
S1A_IW_GRDH_1SDV_20170503T132117_20170503T132142_016418_01B310_4332.zip	4/9/2019 11:49 AM	Compressed (zipp...	1,000,163 ...
S1A_IW_GRDH_1SDV_20170515T132118_20170515T132143_016593_01B863_620F.zip	4/9/2019 11:50 AM	Compressed (zipp...	1,008,573 ...
S1A_IW_GRDH_1SDV_20170527T132118_20170527T132143_016768_01BDC5_6FA3.zip	3/30/2019 2:59 PM	Compressed (zipp...	1,021,987 ...
S1A_IW_GRDH_1SDV_20170608T132119_20170608T132144_016943_01C334_5937.zip	3/31/2019 10:36 A...	Compressed (zipp...	1,026,214 ...
S1A_IW_GRDH_1SDV_20170620T132120_20170620T132145_017118_01C81A_81A9.zip	3/31/2019 11:30 A...	Compressed (zipp...	1,032,404 ...
S1A_IW_GRDH_1SDV_20170702T132121_20170702T132146_017293_01CDE0_ABA5.zip	3/31/2019 2:53 PM	Compressed (zipp...	1,034,470 ...
S1A_IW_GRDH_1SDV_20170714T132121_20170714T132146_017468_01D32A_696A.zip	3/31/2019 11:56 A...	Compressed (zipp...	1,028,864 ...
S1A_IW_GRDH_1SDV_20170726T132122_20170726T132147_017643_01D887_A42E.zip	3/31/2019 3:22 PM	Compressed (zipp...	1,031,385 ...
S1A_IW_GRDH_1SDV_20170807T132123_20170807T132148_017818_01DDDB_30C5.zip	3/31/2019 10:13 PM	Compressed (zipp...	1,032,184 ...
S1A_IW_GRDH_1SDV_20170819T132123_20170819T132148_017993_01E329_783B.zip	3/31/2019 11:30 PM	Compressed (zipp...	1,029,929 ...
S1A_IW_GRDH_1SDV_20170831T132124_20170831T132149_018168_01E86C_4C41.zip	4/1/2019 9:55 AM	Compressed (zipp...	1,027,860 ...
S1A_IW_GRDH_1SDV_20170912T132124_20170912T132149_018343_01EDE8_0E83.zip	4/1/2019 2:36 PM	Compressed (zipp...	1,031,322 ...
S1A_IW_GRDH_1SDV_20170924T132125_20170924T132150_018518_01F343_88B6.zip	4/1/2019 2:50 PM	Compressed (zipp...	1,028,846 ...
S1A_IW_GRDH_1SDV_20171006T132125_20171006T132150_018693_01F899_7EEF.zip	4/1/2019 4:51 PM	Compressed (zipp...	1,022,500 ...
S1A_IW_GRDH_1SDV_20171018T132125_20171018T132150_018868_01FDF5_7DEF.zip	4/1/2019 6:57 PM	Compressed (zipp...	1,027,288 ...
S1A_IW_GRDH_1SDV_20171030T132125_20171030T132150_019043_020347_C5B2.zip	4/1/2019 8:04 PM	Compressed (zipp...	1,028,348 ...
S1A_IW_GRDH_1SDV_20171111T132125_20171111T132150_019218_0208AA_229F.zip	4/2/2019 12:35 PM	Compressed (zipp...	1,028,067 ...
S1A_IW_GRDH_1SDV_20171123T132125_20171123T132150_019393_020E31_8021.zip	4/2/2019 1:09 PM	Compressed (zipp...	1,004,860 ...
S1A_IW_GRDH_1SDV_20171205T132124_20171205T132149_019568_0213AF_9E56.zip	4/2/2019 1:55 PM	Compressed (zipp...	1,003,688 ...
S1A_IW_GRDH_1SDV_20171217T132124_20171217T132149_019743_02191E_ED89.zip	4/2/2019 2:21 PM	Compressed (zipp...	1,002,459 ...
S1A_IW_GRDH_1SDV_20171229T132123_20171229T132148_019918_021E89_F9FA.zip	4/2/2019 3:31 PM	Compressed (zipp...	1,006,895 ...

Downloaded data



User Guides - Sentinel-1 SAR - S... X
https://sentinel.esa.int/web/sentinel/user-guides/sentinel-1-sar



Need Help? [FAQ](#) [Contact Us](#) [About Sentinel Online](#)

Missions **User Guides** Technical Guides Thematic Areas Data Access

You are here [Home](#) > [User Guides](#) > [Sentinel-1 SAR](#) [Share](#) | [f](#) [t](#) [p](#) [e](#)

- SENTINEL-1 SAR User Guide Introduction

The SENTINEL-1 User Guide provides a high level description of the available instrument modes and products. It also covers an introduction to relevant application areas, information on data distribution, product formatting and software tools available from ESA.

The categories are:

- [Overview](#)
Gives a brief description of the mission, the data it acquires and its primary uses.
- [Applications](#)
Describes the support of the SENTINEL-1 mission to three GMES application areas of maritime monitoring, land monitoring and emergency management, and provides a mapping from SENTINEL-1 product to application.
- [Acquisition Modes](#)
Describes the SENTINEL-1 acquisition modes of [Stripmap](#), [Interferometric Wide Swath](#), [Extra Wide Swath](#), and [Wave](#)
- [Product Types and Processing Levels](#)
Describes the processing levels in which SENTINEL-1 products are provided - [Level-0](#), [Level-1](#), and [Level-2](#)
- [Resolutions](#)
Describes the resolutions available at each product level and type.
- [Revisit and Coverage](#)
Describes the revisit frequency and coverage provided by SENTINEL-1's primary modes

User Guides

- [User Guides Home](#)
- [Sentinel-1 SAR](#)**
 - [Overview](#)
 - [Applications](#)
 - [Acquisition Modes](#)
 - [Product Types and Processing Levels](#)
 - [Resolutions](#)
 - [Revisit and Coverage](#)
 - [Naming Conventions](#)
 - [Data Formats](#)
 - [Products and Algorithms](#)
 - [Cal/Val](#)
 - [Definitions](#)
 - [S1-SAR Document Library](#)
- [Sentinel-2 MSI](#)
- [Sentinel-3 OLCI](#)
- [Sentinel-3 SLSTR](#)
- [Sentinel-3 Synergy](#)
- [Sentinel-3 Altimetry](#)
- [Sentinel-5P TROPOMI](#)



How to get SAR data free?

<https://search.asf.alaska.edu/#/>

EARTHDATA Other DAACs - Feedback ?

ASF Data Search Vertex

Search Type: Geographic Dataset: Sentinel-1 Area of Interest: WKT Filters: 250 of 15,189,896 Files

On Demand Downloads Sign in

Map View Zoom Layers Area of Interest Product Browse Opacity 100%

lat 01.7656° lon -82.4471°

ALASKA SATELLITE FACILITY
Vertex is the Alaska Satellite Facility's data portal for remotely sensed imagery of the Earth.

Vertex Interactive Tours Help ASF Home

Earthdata Login Download Queue Contact

Geospatial Granule Missions

Geographic Region

Option 1: Click on map and move cursor
Option 2: Enter coordinates:
68.79,33.05,70.4,33.05,70.4,34.91,68.79,34.91,68.79,33.05
e.g., -102,37.59, -94,37, -94,39, -102,38, -102,37.59

Dataset

Select: All | None

Dataset	Info
<input type="checkbox"/> Sentinel-1B	2016-now
<input checked="" type="checkbox"/> Sentinel-1A	2014-now
<input type="checkbox"/> SMAP	2015-now
<input type="checkbox"/> UAVSAR	2008-now
<input type="checkbox"/> ALOS PALSAR	2006-2011
<input type="checkbox"/> RADARSAT-1	1995-2008
<input type="checkbox"/> ERS-2	1995-2011
<input type="checkbox"/> JERS-1	1992-1998
<input type="checkbox"/> ERS-1	1991-1992
<input type="checkbox"/> AIRSAR	1990-2004
<input type="checkbox"/> SEASAT	1978-1978

Optional Search Criteria

Date

Seasonal Search

World Map | South Polar

Satellite Map

Showing 1 to 13 of 13 entries

Flight Direction Ascending
Absolute Orbit 20166
Data source ESA
Details Queue Baseline

Sentinel-1A IW
S1A_IW_GRDH_1SD...
Path 71, Frame 169, VV+VH
Flight Direction Ascending
Absolute Orbit 20093
Data source ESA
Details Queue Baseline

Sentinel-1A IW
S1A_IW_GRDH_1SD...
Path 71, Frame 164, VV+VH
Flight Direction Ascending
Absolute Orbit 20093
Data source ESA
Details Queue Baseline

Sentinel-1A IW
S1A_IW_GRDH_1SD...
Path 173, Frame 108, VV+VH
Flight Direction Ascending
Data source ESA
Details Queue Baseline

Show: 100 entries

Add to Queue by Type

Event Search Now Live on Vertex!
Event search, powered by SARVIEWS, is now live on Vertex! [\[MORE\]](#)

This website uses cookies to ensure you get the best experience on our website. [Learn More](#)

Netherlands Luxembourg Slovakia Ukraine Belarus

M

How to get SAR (PALSAR-2 Mosaic) data free?

https://www.eorc.jaxa.jp/ALOS/en/dataset/fnf_e.htm

- Open dataset generated by JAXA using powerful processing and sophisticated analysis method
- Global 25m resolutions PALSAR-2/PALSAR mosaic and forest/non-forest map using L-band Synthetic Aperture Radars (PALSAR and PALSAR-2)

ALOS Advanced Land Observing Satellite
ALOS Research and Application Project

ALOS-4 ALOS-3 ALOS-2 ALOS JERS-1 Dataset Image Library RA & Meeting

Datasets for 2013 and beyond (GeoTIFF + XML metadata (in compliance with OARD4L (ALOS Analysis Ready Data for Land) specifications))

- Resolution: approx. 25 m (original product), 100 m/1 km/0.25 deg. (low resolution product, only forest/non-forest map)
- Contents: ortho and slope corrected backscattering coefficient (HH and HV polarization), forest/non-forest map, observation date, local incidence angle, processing mask information

For details, please see the [dataset description document \(Ver. L, PDFfile\)](#).

4. Download

Please register your information from following URL to download the dataset. It is required your email address.

https://www.eorc.jaxa.jp/ALOS/en/palsar_fnf/registration.htm

This is temporarily registration (especially please check your email address again) and will send email you to accept your registration request. After the confirmation of your request, the download information will send by email.

The dataset download site is:

https://www.eorc.jaxa.jp/ALOS/en/palsar_fnf/data/index.htm

- * If you forget your password, please register again.
- * Recommend to use Microsoft Edge, Google Chrome, Mozilla Firefox, Apple Safari.
However, it may not be available depending on the version.
- * Depending on your network environment, the downloaded compressed file may be automatically uncompressed.
- * Depending on the time, it may take time to display the page or download the dataset.



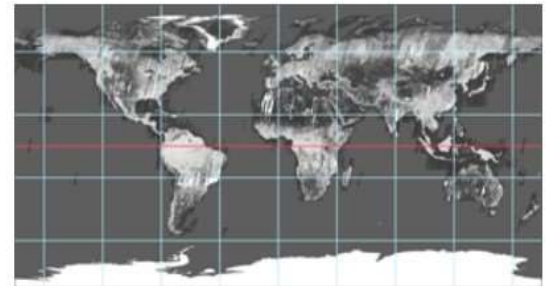
How to get SAR (PALSAR-2 Mosaic) data free?

25m resolution product

Global

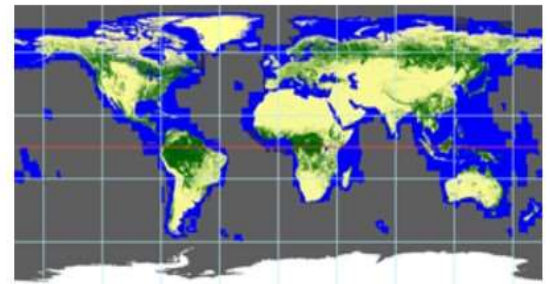
- JERS-1 SAR Mosaic:

>> 1996



- PALSAR/PALSAR-2 mosaic and forest/non-forest (FNF) map:

>> 2007 >> 2008 >> 2009 >> 2010 >> 2015
>> 2016 >> 2017 >> 2018 >> 2019 >> 2020



How to download SNAP?

- The Sentinel Application Platform (SNAP) reunites all Sentinel Toolboxes in order to offer the most complex platform for this mission.
- The SNAP architecture is ideal for Earth Observation processing and analysis.

Science Toolbox Exploitation Platform

SNAP Download

<https://step.esa.int/main/download/snap-download/>

Here you can download the latest installers for SNAP and the Sentinel Toolboxes.

Data provision is available to all users via the [Sentinel Data Hub](#).

Current Version

The current version is **8.0.0** (19.10.2020 15:00 UTC).

For detailed information about changes made for this release please have a look at the release notes of the different projects: [SNAP](#), [S1TBX](#), [S2TBX](#), [S3TBX](#), [SMOS Box](#), [PROBA-V Toolbox](#)

We offer three different installers for your convenience. Choose the one from the following table which suits your needs. During the installation process, each toolbox can be excluded from the installation. Toolboxes which are not initially installed via the installer can be later downloaded and installed using the plugin manager. Please note that SNAP and the individual Sentinel Toolboxes also support numerous sensors other than Sentinel.

	Windows 64-Bit	Windows 32-Bit	Mac OS X	Unix 64-bit
Sentinel Toolboxes	These installers contain the Sentinel-1 , Sentinel-2 , Sentinel-3 Toolboxes, download size is close to 900MB.			
	Main Download Mirror Download	Main Download Mirror Download	Main Download Mirror Download	Main Download Mirror Download
SMOS Toolbox	These installers contain only the SMOS Toolbox , download size is close to 500MB. Download also the Format Conversion Tool (Earth Explorer to NetCDF) and the user manual .			
	Main Download Mirror Download	Main Download Mirror Download	Main Download Mirror Download	Main Download Mirror Download
	These installers contain the Sentinel-1 , Sentinel-2 , Sentinel-3 Toolboxes, SMOS and PROBA-V Toolbox, download size is close to 1GB.			

Feature Highlights

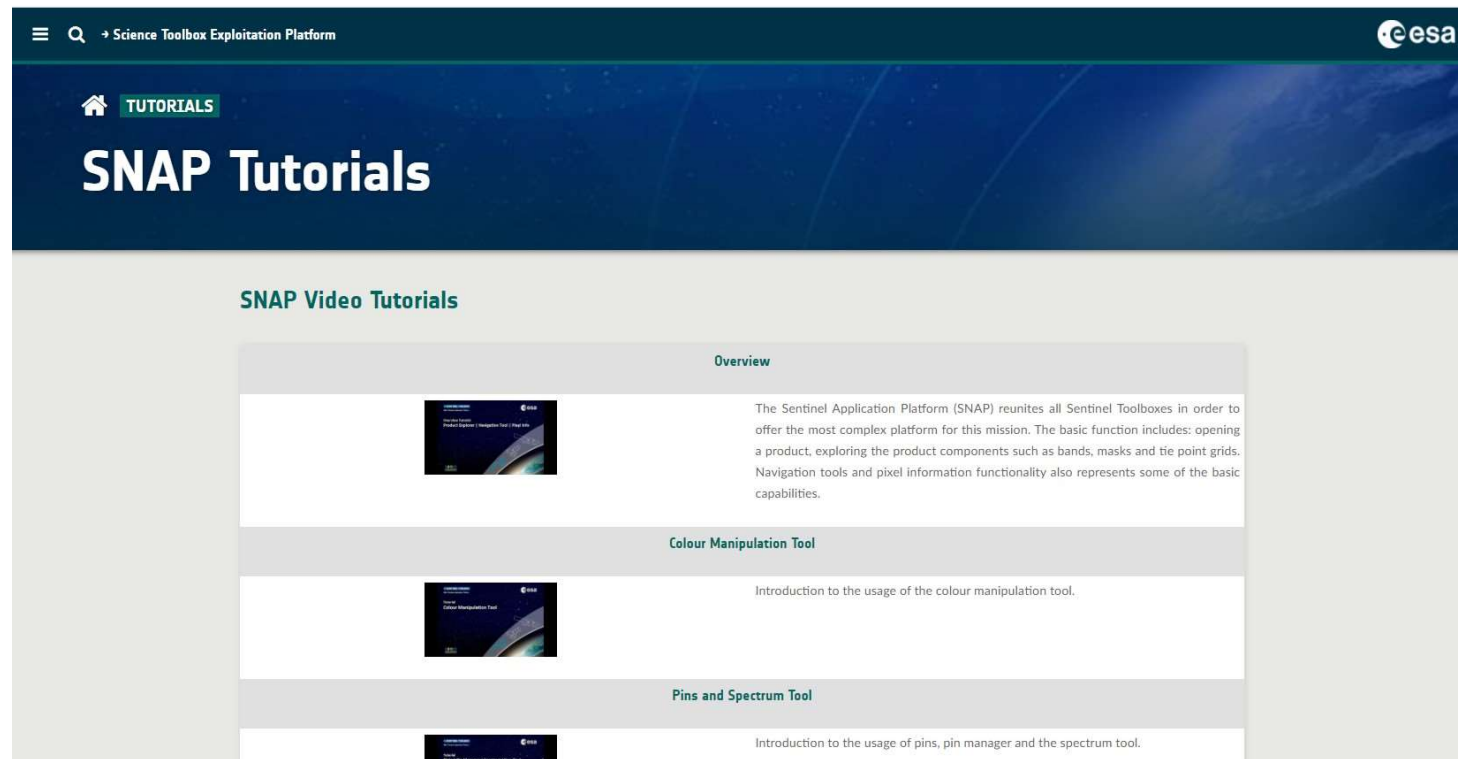
- Common architecture for all Toolboxes
- Very **fast image display and navigation** even of giga-pixel images
- Graph Processing Framework (GPF): for creating user-defined processing chains
- Advanced **layer management** allows adding and manipulation of new overlays such as images of other bands, images from WMS servers or ESRI shapefiles
- Rich **region-of-interest** definitions for **statistics** and various **plots**
- Easy **bitmask** definition and overlay
- Flexible **band arithmetic** using arbitrary mathematical expressions
- Accurate **reprojection** and **ortho-rectification** to common map projections,
- Geo-coding and rectification using **ground control points**
- Automatic SRTM DEM download and tile selection
- Product library for scanning and cataloguing large archives efficiently
- Multithreading and Multi-core processor support
- Integrated WorldWind visualisation



SNAP Tutorials

<https://step.esa.int/main/doc/tutorials/snap-tutorials/>

- Reprojection
- Band math
- Calculate NDVI
- Mosaicing
- Product export, etc



The screenshot shows the 'SNAP Tutorials' page on the Science Toolbox Exploitation Platform. The page features a dark blue header with the ESA logo and a search bar. Below the header, the title 'SNAP Tutorials' is prominently displayed. The main content area is titled 'SNAP Video Tutorials' and lists three tutorial categories: 'Overview', 'Colour Manipulation Tool', and 'Pins and Spectrum Tool'. Each category includes a small video thumbnail and a brief description of the tutorial's content.

Science Toolbox Exploitation Platform

TUTORIALS

SNAP Tutorials

SNAP Video Tutorials

Overview

The Sentinel Application Platform (SNAP) reunites all Sentinel Toolboxes in order to offer the most complex platform for this mission. The basic function includes: opening a product, exploring the product components such as bands, masks and tie point grids. Navigation tools and pixel information functionality also represents some of the basic capabilities.

Colour Manipulation Tool

Introduction to the usage of the colour manipulation tool.

Pins and Spectrum Tool

Introduction to the usage of pins, pin manager and the spectrum tool.



Thank you

**Let's protect
the pulse.**