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DOCUMENT

ESA EOHep Frequently Asked Questions

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Abstract:

This document reports the frequently asked questions and answers concerning the ESA Earth Observation services related to data access, instruments, products, tools and catalogues.

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1 INTRODUCTION

1.1 Purpose of this document

The purpose of this FAQ is to act as a repository for the common questions raised by the Earth Observation user community via EOHelp related to the EO services offered by the European Space Agency (ESA).

This document is addressed to the end-users with the aim of providing the key information regarding access to and use of EO data.

Any comments and questions on the document should be addressed to EOHelp (eohelp@esa.int).

1.2 Other related FAQ sources

The FAQ listed in this document are of more general character while links to a series of more detailed FAQs related to specific instruments, services and tools are given below:

EOPI – Earth Observation Principal Investigator Portal

<http://eopi.esa.int/esa/docs/doc/download/FAQ.pdf>

Envisat ASAR - <http://envisat.esa.int/handbooks/asar/CNTR4.htm#eph.asar.faq>

Envisat AATSR -

<http://envisat.esa.int/earth/www/object/index.cfm?fobjectid=3773&contentid=3847>

Envisat MERIS - http://earth.esa.int/pub/ESA_DOC//ENVISAT/MERIS/meris.faq.1_0.pdf

Envisat RA2/MWR - <http://envisat.esa.int/handbooks/ra2-mwr/CNTR4.htm#eph.ra2-mwr.faq>

CryoSat - <http://earth.esa.int/object/index.cfm?fobjectid=7655>

SMOS - <http://earth.esa.int/object/index.cfm?fobjectid=7545>

Landsat - http://earth.esa.int/pub/ESA_DOC/landsat_FAQ/index.html

ALOS - <http://earth.esa.int/object/index.cfm?fobjectid=5150>

NEST - Next ESA SAR Toolbox - <http://nest.array.ca/web/nest/nest-home>

BEAM - Basic ERS & Envisat (A) ATSR and MERIS Toolbox -

<http://www.brockmann-consult.de/cms/web/beam/welcome>

BEAT - The Basic ERS & Envisat Atmospheric Toolbox - <http://www.stcorp.nl/beat/>

BRAT - Basic Radar Altimetry Toolbox - http://earth.eo.esa.int/brat/html/data/toolbox_en.html

PoISarPro - <http://earth.eo.esa.int/polsarpro/>

2 GENERAL QUESTIONS

2.1 How to get access to ESA Earth Observation data?

According to the ESA data policy, satellite data can be obtained from ESA free of charge via Registration (Free Dataset for science or operational use) or upon submission and approval of a project proposal (for Restrained Datasets/on demand planning and production) through the ESA Earth Observation Principal Investigator Portal depending on the products required. See further details at <http://eopi.esa.int/Cat1>

Data available under the simplified "Registration" procedure is systematically generated and distributed on line. See further details including the list of available products at <http://eopi.esa.int/Registration>

The applicable prices for "Third Party Mission" data are available at <http://eopi.esa.int/TPM>

Alternatively (Category-2 priority), you have to contact either of the two Distributing Entities EMMA and SARCOM represented by e-GEOS (<http://www.e-geos.it/>) and Spot Image (<http://www.spot.com>) for purchase of data on a commercial basis.

Please also refer to "How to Apply" at <http://earth.esa.int/dataproducts/accessingeodata> as well as "How to Access" at <http://earth.esa.int/dataproducts/accessingeodata/howtoaccess.html>

As far as the ESA Earth Observation data coverage is concerned, you should make use of the EOLI-SA catalogue available at <http://earth.esa.int/resources/catalogues/>. The EOLI catalogue can be freely used for search and browsing. User ID and password for ordering are only provided upon approval of a project proposal/registration.

Extensive information on the various ESA Earth Observation Missions and Products is available on the ESA Earthnet Online Home page at <http://earth.esa.int/missions/>

2.2 How to access ESA EO data for resell and operational use?

ESA is gradually moving into implementing free of charge access for all its data.

Most of the Envisat and ERS data is available on Internet free of charge (Free Dataset) to anybody for science or operational use via registration at the ESA dedicated website EOPI (see further details including the list of available products at <http://eopi.esa.int/Registration>). The current Terms and Conditions for using those data do not allow reselling of the data.

Some data which is not yet available systematically on Internet (in particular SAR instrument tasking or some specific SAR data production) can still be obtained through two channels:

- at ESA, free of charge, within a production quota defined by ESA and with a lower priority. The current Terms and Conditions for using those data do not allow reselling of the data.

- through existing Distributing Entities, EMMA and SARCOM represented respectively by E-GEOS (<http://www.e-geos.it/>) and Spot Image (<http://www.spot.com>) for purchase of data on a commercial basis with an higher priority. See also under "How to Apply" at <http://earth.esa.int/dataproducts/accessingeodata/>

The Distributing Entities may authorise reselling and should be contacted directly for this purpose.

ESA data policy is available at http://eopi.esa.int/esa/docs/doc/download/revised_ESA_data_policy.pdf

2.3 How to get ESA data acquired for the "International Charter for Space and Major Disasters"

In case of major natural disasters, ESA will normally and if possible, perform a planning for acquisitions of relevant satellite data for ERS and/or ENVISAT. This is sometimes done through the Back Ground Mission (BRM) and/or often activated upon request through the "International Charter for Space and Major Disasters" <http://www.disasterscharter.org/home> or the "GMES SAFER" http://gmesdata.esa.int/web/gsc/core_services/emergency.

The special planning performed by ESA for such events is reported on the ESA Earth Watching Pages at <http://ew.eo.esa.int/web/guest/home>

Distribution of the relevant acquired satellite data is handled directly within the framework of the activated Charter, distributed commercially through the dedicated Distributing Entities (Category-2 priority) or to approved ESA project proposals upon ordering or access to on-line archives by registered users.

All acquired validated data is made available in the EOLI-SA catalogue and can be ordered/accessed according to the normal procedure - see <http://earth.esa.int/dataproducts/accessingeodata/>

2.4 How to get EO sample data and information on training?

As far as ENVISAT is concerned, some sample data products from the various instruments are freely available for download on the ENVISAT web page at http://envisat.esa.int/services/sample_products. Here you will also find the EnviView s/w that will enable you to open and examine ENVISAT data sets, as well as the BEST, NEST and the BEAM s/w toolboxes that are available free of charge - <http://earth.esa.int/resources/softwaretools/>

See also the data made freely available for certain specific events like the Bam earthquake, the Asia Tsunami and the "Prestige" oil Spill over Galicia - <http://envisat.esa.int/category/index.cfm?fcategoryid=37>

Extensive information on the ENVISAT Mission, products and applications is available on the ENVISAT web pages - <http://envisat.esa.int>. See in particular the sections dedicated to "Instruments" and "Product Handbook / User Guide" for the instrument of interest.

Should you be in need of other data covering a specific area and date range, please be advised that satellite data can be obtained from ESA free of charge via Registration (Free Dataset) or upon submission and approval of a project proposal (for Restrained Datasets/on demand planning and production) through the ESA Earth Observation Principal Investigator Portal depending on the products required. See further details at <http://eopi.esa.int/Cat1> and at <http://earth.esa.int/dataproducts/accessingeodata>

For training and education, you can have a look at the Library section on the ESA Earthnet Online web page at <http://earth.esa.int/category/index.cfm?fcategoryid=34>. Many documents are available in full text and/or can be ordered directly on line.

See e.g. the CD-Rom "ERS Spaceborne Radar Imagery" available in full text on line at http://earth.esa.int/applications/data_util/SARDOCS/spaceborne/.

We also draw your attention to the section dedicated to "Education" on the ESA Web Portal (<http://www.esa.int>) / <http://www.esa.int/SPECIALS/Education/>

See e.g. the link to Eduspace where you will find information and case studies related to Remote Sensing presented in a user friendly way http://www.esa.int/SPECIALS/Education/SEM19N4DHNH_0.html

2.5 How to get data for INSAR applications?

SAR and ASAR data from the ERS and ENVISAT missions for INSAR applications can be obtained from ESA free of charge upon submission and approval of a project proposal (for Restrained Datasets/on demand planning and production) through the ESA Earth Observation Principal Investigator Portal. See further details at <http://eopi.esa.int>.

You can also browse these pages (use the Search option) to get further details and contact points related to work performed by already approved ESA Earth Observation projects within your field of application.

Alternatively (Category-2 priority), you have to contact either of the two Distributing Entities EMMA and SARCOM represented by E-GEOS (<http://www.e-geos.it/>) and Spot Image (<http://www.spot.com>) for purchase of SAR and / or ASAR image data on a commercial basis.

See also under "How to Apply" at <http://earth.esa.int/dataproducts/accessingeodata> as well as "How to Access" at <http://earth.esa.int/dataproducts/accessingeodata/howtoaccess.html>

As far as the ESA Earth Observation data coverage is concerned, you should make use of the EOLI-SA catalogue - <http://earth.esa.int/EOLI/EOLI.html>. The EOLI catalogue can be freely used for search and browsing. No user registration is required for this purpose. ERS and ENVISAT INSAR search (Baseline/Doppler information) is supported by the LOCAL inventory in the EOLI-SA catalogue. See also the EOLI-SA User Manual.

Due to the ERS-2 attitude instability since January 2001, note that both Doppler and Baseline information should be checked before selection of suitable ERS SAR INSAR pairs, while Baseline information only will do for selection of Envisat ASAR pairs.

For more information on interferometry, please refer to the papers and proceedings from the latest FRINGE workshops available at <http://earth.eo.esa.int/workshops/fringe09/> <http://earth.esa.int/workshops/fringe07/>

A booklet on InSAR Principles: Guidelines for SAR Interferometry Processing and Interpretation (ESA TM-19) is also available for purchase from ESA through the following link: http://www.esa.int/SPECIALS/ESA_Publications/SEM867MJC0F_0.html

Further details on the ESA Missions and satellite products are available in the "Mission" branch of the ESA Earthnet Online Home Page at <http://earth.esa.int>. See under ERS and ENVISAT. The product types suitable for INSAR applications are ERS SAR RAW / ENVISAT ASAR level 0 (requires your own processor) and SAR SLC/ ASA_IMS products. See the ERS and ENVISAT product descriptions at <http://earth.esa.int/dataproducts/>

2.6 How to get information on specific RS applications and suitable products?

Extensive information on the ESA Remote Sensing missions, products and related applications is available on the ESA Earthnet Online Home Page at <http://earth.esa.int/>

A series of documents available in full text or to be ordered directly on line can be found under the Resources / Documentation section at <http://earth.esa.int/resources/documentation/>

Presentations and papers related to the various applications of interest are available in the proceedings from a series of workshops and symposiums - see <http://earth.esa.int/resources/workshops/>

From the "Search" area on the ESA Earth Observation Principal Investigator Portal (EOPI) at <http://eopi.esa.int>, it is possible to obtain detailed information related to the work performed and products used by approved ESA Category-1 projects within the field of application of interest.

3 ONLINE ARCHIVE

3.1 How to identify the ENVISAT product files on the Rolling Archive?

On the RA, the orbit and the start time of the product can be identified within the "product file name" as explained in the sample below.

Alternatively, the needed product can be identified by use of the EOLI-SA catalogue - <http://earth.esa.int/EOLi/EOLi.html>. Orbit number and start/stop time of the needed segment(s) covering the area of interest shall be recorded and searched for in the Rolling Archive..

Note that the data products on the Rolling Archive can also be retrieved directly via EOLI-SA through the "ESA Rolling Archive Collections" (see under "Other Collections").

Below is an example of an ASAR IMS product file name which should read as follows:
(Note that the product file name convention is the same for all Envisat instruments)

ASA_IMS_1PNPDE20070821_165527_000000172061_00012_28623_9672.N1

ASA_IMS_IP = Product ID = ASAR Image Mode Single Look Complex Level 1P
N = Processing stage flag (e.g. N = NRT product)
PDE = Originator ID / Processing Facility (e.g. PDE= PDHS-E)
20070821 = Start day (YYYYMMDD) 21 Aug 2007
165527 = StartTime (16:55:27 UTC)
000000172061= Duration - (17 seconds) 2 (phase) 061 (cycle)
00012 = Relative orbit / track
28623 = Absolute orbit
9672 = Product type file counter
N1 = Satellite ID (N1 = Envisat-1)

The standard ENVISAT naming convention is reported in the following document:

PO-RS-MDA-GS-2009
TITLE: ENVISAT-1 PRODUCTS SPECIFICATIONS
ANNEX A: PRODUCT DATA CONVENTIONS

The document is available in full text on the Envisat Web page at:
http://earth.esa.int/pub/ESA_DOC/ENVISAT/AnnexA_Data_Convention_3e.pdf

3.2 How to select sub-scenes using the MERCI service?

In order to obtain a scene subset, please proceed as indicated below:

- 1 - Make the search selecting the "Full Orbit" option in the subset field.
- 2 - Select only (tick off box) the orbit covering your area of interest in the search result list.
- 3 - Click on the selected "product name" to open the "Detailed Product Information" window.
- 4 - In the "Detailed Product Information" window, the entire QL/browse image of the selected orbit is displayed at the left.
- 5 - Scroll the browse image until you find a rectangular box which represents the scene subset.
- 6 - Under the "Height" option (see Define Scene menu), select the scene size of interest or alternatively the whole orbit.
- 7 - Move the rectangular box along the browse image with the cursor to cover the exact area of interest (the start line will change accordingly).
- 8 - Click on the download option to get the selected subset scene.

4 CATALOGUES

4.1 How to retrieve data from the ESA Rolling Archives directly via EOLI-SA

Data from the Envisat Rolling Archives can be downloaded directly from the EOLI-SA catalogue from "Other Collections / ESA Rolling Archive collections" - (select item => click on get or open the product details (magnifying symbol) => download products. The status is reported in the "Downloads" tab in the upper menu of EOLI-SA.

Note that the correct proxy and port has to be set under "Preferences" in EOLI-SA (Menu => App => Preferences) in case proxy is used at your institute.

The User ID and password for the relevant Rolling Archive will apply when prompted for download.

4.2 Why are there ENVISAT and ERS scenes in DESCW that are not available in EOLI-SA?

There should normally not be a difference in the data coverage in DESCW and EOLI-SA.

When using the "Show results as standard frames" option in the Advanced Query mode, when performing a catalogue search, the EOLI-SA will only show the full frames and exclude the frames having missing data. In DESCW all frames are shown but the missing nodes are indicated and must be checked in the scene list.

In order to see all available data in EOLI-SA, the general no frame based search should be used. This will retrieve the full segment acquired. In the shop cart the scene can then be shifted to the extreme of the available acquired segment.

4.3 How to order shifted frames in EOLI-SA?

Using the "Show results as standard frames" option in the Advanced Query mode when performing a search, the EOLI-SA catalogue will only show the full nominal frames and exclude the frames having missing data. Moreover, this option will only allow ordering of the nominal frame which cannot be shifted.

In order to see all available data in EOLI-SA, the general no frame based search should be used. This will retrieve the full segment acquired. In the shop cart the scene can then be shifted to the extreme of the available acquired segment.

In order to be able to shift the ERS and ENVISAT scenes/frames in EOLI-SA, please proceed as indicated below:

- 1) Do NOT tick off the "Show results as standard frames" option in the "Advanced" Query Mode in the catalogue section.
- 2) Set a search area which is wide enough to contain more than one standard scene for the selected product. Consequently the query will retrieve a "segment" which can contain more than one standard scene/frame.
- 3) Select the segment and put it in the "Shop Cart". From the Shop Cart you should then be able to shift the standard scene along the parent-segment by dragging with the mouse on the map. Under the "Order Options" you will see that the start/stop time, coordinates and frame number will change accordingly.

4.4 EOLI-SA - How to select floating PASS, floating SCENE and consecutive scenes?

You have two options for ordering in the EOLI-SA Shop Cart after having performed a general no frame based catalogue search:

- = > Standard size product = floating SCENE (standard sized scene which can be moved along the segment)
- = > Non standard scene = floating PASS (stripline/segment for which the length can be resized)

Note that it is only possible to order Floating PASS for certain product types - mainly level 0 data.

To order a stripline/segment you have to select the relevant product type and then "floating PASS" as "scene type" under the "order options" in the EOLI-SA Shop Cart.

After selection of "floating PASS", go to the map in the Shop Cart where you have to move the cursor over the green triangles until you get a double-sided arrow and resize the top and bottom boundaries to cover the area of interest.

If "floating SCENE" is selected you will only get the possibility to move the entire scene (standard size) north- or southwards along the selected segment.

In case you need several consecutive scenes which would be the alternative when "floating PASS" is not available, you can do this by clicking on the "duplicate" button in the Shop Cart (lower left). The frame will then automatically place itself on the consecutive scene of the

segment ensuring a minimum overlap. The data will however be delivered as two (or more) individual standard size products.

4.5 How to see "planned" ASAR and MERIS FR acquisitions in EOLI-SA?

The following 3 possible status are used in EOLI-SA:

Archived - when the data has already been acquired and archived in the catalogue.

Planned - when the data has already been planned for acquisition by the ESA Mission Planners.

Potential - any data potentially available for acquisition but for which a planning request is required.

All data listed with the status "Potential" in EOLI-SA are potential future acquisitions for which any ASAR High Rate and MERIS Full Resolution (FR) acquisition must be specifically requested for planning to try and ensure acquisition. This requires that the project proposal has an allocated quota for new acquisitions, and that a specified order for planning must be submitted to ESA via EOLI-SA at the latest 2 weeks ahead of sensing date to comply with the planning constraints.

The user requests for planning are usually inserted and made visible in EOLI-SA approximately 3-4 weeks before acquisition and the status is then changed from "Potential" to "Planned". Cancellations and changes may however still occur due to conflicts or other constraints. The change from "Planned" to "Archived" is usually confirmed in the catalogue within 24-30 hours after acquisition. Any data not being acquired will disappear from the catalogue after the potential date of acquisition.

In addition to the specific user requests, there is also a default planning for ASAR HR and MERIS FR, the so-called Background Regional Mission (BRM). These acquisitions are however subject to changes and have lower priority than the user planning requests. The BRM planning is only made visible in "Planned" status some 10-12 days in advance of the acquisition date.

Further information on the ASAR HR and MERIS FR Background Regional Missions is outlined at

<http://earth.esa.int/object/index.cfm?fobjectid=4045> (ASAR) and

<http://earth.esa.int/object/index.cfm?fobjectid=4046> (MERIS)

4.6 How to obtain ERS and ENVISAT Baseline information in EOLI-SA?

The ERS and ENVISAT Baseline and INSAR search is supported by the LOCAL inventory in EOLI-SA.

Please find below the procedure on how to update the local interferometric collections.

To add / update a local ERS SAR / Envisat ASAR collection and its baseline information in EOLI-SA:

1 - Install / use the latest version of EOLI-SA available for download at:

<http://earth.esa.int/EOLi/EOLi.html>

2 - Launch the EOLI-SA application

3 - In the "On line collection" tree branch, select the ERS SAR and/or the Envisat ASAR collection of interest, right click on it and select the menu "Add Local Collection". EOLI-SA will then start downloading the necessary collection files (without interferometry info) from the server. A new collection will be added in the Local Collection tree branch.

4 - In the Local Collection tree branch, find the newly added relevant ERS SAR / Envisat ASAR collection, right click on it and select the menu "Update Interferometry". EOLI-SA will then start downloading the interferometry related info (baselines).

5 - You can now do an interferometric search using the relevant LOCAL ERS SAR / Envisat ASAR collection selecting the "Interferometry" Query Mode and specifying your search criteria.

6 - Please update the local collections and Interferometry files regularly - see point 4

For further details please refer to the EOLI-SA User Guide/Manual (see section 6.5, 6.6 and 6.7) available at: <http://earth.esa.int/EOLi/EOLi.html>

4.7 What is the date range for the availability of data from the ERS-1/ERS-2 SAR Tandem Mission?

The ERS-1 / ERS-2 SAR Tandem acquisitions were mainly performed during the period 1995 - 1996, but you might also find a limited amount of Tandem data acquired up until the end of the ERS-1 Mission (10 March 2000). See also <http://earth.esa.int/object/index.cfm?fobjectid=3329>

The data availability can be retrieved by performing a search using the "ERS Tandem Interferometry" Query Mode from the Local Collections in the EOLI-SA Catalogue - <http://earth.esa.int/EOLi/EOLi.html>

4.8 What is the difference between MERIS FR and FRS data ordered via EOLI-SA?

MERIS FR and FRS are both MERIS Full Resolution data which can be ordered through the EOLI-SA catalogue <http://earth.esa.int/EOLi/EOLi.html> upon approval of a Project Proposal for Restrained Datasets - see <http://eopi.esa.int/cat1>

The MERIS FR level 1 data is delivered as 1/4 scenes with respect to the full available swath/segment being the Full scene (FRS).

A MERIS full scene (FRS) is 196 seconds long and about 1100 Km wide.
A quarter scene has half the length and half the width of the full scene (a quarter of the area) so it is 98 seconds long and about 550 Km wide.

4.9 Where can I find information on ALOS PALSAR baselines for interferometry in EOLI-SA?

INSAR search and baseline information for ALOS PALSAR data is not supported by EOLI-SA. In order to verify the baseline for the selected scenes, please refer to the JAXA PALSAR baseline calculation tool available at - <http://www.eorc.jaxa.jp/ALOS/en/doc/tool.htm>

See also ALOS PALSAR FAQ at <http://earth.esa.int/pcs/alos/palsar/userinfo/>

4.10 Is it possible to order ALOS shifted frames in EOLI-SA?

Regarding data from the archive, it is not possible to shift the frames for ALOS data in EOLI-SA. Only the standard scenes can be ordered. In case the area of interest is positioned between two consecutive scenes, both scenes should be ordered.

4.11 Where to find whether ALOS PRISM TRIPLET mode (OB1) data contain all three views in EOLI-SA?

For ALOS PRISM data in TRIPLET mode (OB1), the user will normally receive 2 or 3 products depending on where the selected scene is located with respect to the complete PRISM OB1 acquisition segment. The following rules apply:

- If the selected scene is one of the 11 first scenes of the acquisition segment, the user gets a forward view and nadir view product
- If the selected scene is one of the 11 last scenes of the acquisition segment, the user gets a backward view and nadir view product
- For the remaining scenes of the acquisition segment, the user gets the backward view, forward view and nadir view products (i.e. the "triplet")

The available view information is given in the "Product Details" window in the EOLI-SA catalogue.

4.12 How to get the ALOS PRISM and AVNIR-2 cloud coverage in EOLI-SA?

It is possible to apply a cloud coverage search criteria in EOLI-SA for the ALOS PRISM and ALOS AVNIR-2 collections.

See further details and constraints at <http://earth.esa.int/object/index.cfm?fobjectid=5934>

4.13 Where to find whether SPOT scenes are subject to repatriation cost in EOLI-SA?

For SPOT data, a repatriation fee is applied for data that are not already archived in Toulouse, Maspalomas or Kiruna. See the Third Party Mission Products Prices for Category-1 use at <http://eopi.esa.int/TPM>.

Whether repatriation fee will apply or not can be checked in the EOLI-SA catalogue - <http://earth.esa.int/EOLi/EOLi.html>. In the "Product Details" for any selected item, there is a special field for "Extra Cost" where "yes" or "no" is indicated.

5 SOFTWARE & TOOLS

5.1 How to get support on the NEST S/W?

The user support for NEST (Next ESA SAR Toolbox) is given directly by ARRAY being the company developing the software.

For further assistance, bug reporting etc. please use the CONTACT US feature on the NEST Website at <http://www.array.ca/nest/>

Note that in order to use the Contact Us section and have full access to the web site, a user registration is required.

5.2 How to get support on the BEST S/W?

For any problems related to the BEST s/w (Basic Envisat SAR Toolbox) please refer to the BEST Web site at <http://earth.esa.int/best/>

See in particular in the "BEST Software" area <http://earth.esa.int/best/software/> pages under:

- Known issues and bugs
- FAQ
- Change Log

Note that it is recommended to use the more recently developed s/w NEST (The Next ESA SAR Toolbox) also freely available on the ESA Earthnet Online Web pages at:

<http://earth.esa.int/resources/softwaretools/> or directly at <http://www.array.ca/nest/tiki-index.php>

5.3 Which S/W tool can be used to read ALOS AVNIR and PRISM data?

The s/w BEAM supports ALOS AVNIR and PRISM data products.

The s/w is freely available for download from the following ESA web site -

<http://earth.esa.int/resources/softwaretools/>

or directly at:

<http://www.brockmann-consult.de/cms/web/beam/>

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5.4 Which S/W tool can be used to read ALOS PALSAR data?

The s/w POLSARPRO supports ALOS PALSAR data products.

The s/w is freely available for download from the following ESA web site:

<http://earth.eo.esa.int/polsarpro/>

6 PRODUCTS & INSTRUMENTS

6.1 ENVISAT / ERS - Is it possible to get a new FTP delivery after the retention time is expired?

The retention time on the ESA FTP server for Envisat and ERS data delivered via FTP / pick up is limited to 10 days. The user will receive an FTP delivery notification via email as soon as the product is ready on the server.

Once the retention time has run out, the products are automatically removed. A new production request has to be submitted by the user through EOLI-SA for re-generation of the product for a new FTP delivery that will be deducted from the allocated project quota. It is not possible to re-open the server or simply put back a delivered product on the FTP server once removed.

6.2 How to read ENVISAT ASAR and/or ERS SAR RAW / level 0 data?

In order to process ENVISAT ASAR and/or ERS SAR RAW/level 0 data, a proper SAR image processing is required. In case you have your own SAR processor you can do it directly, otherwise you have to order level 1 data generated with the nominal ESA processor.

For header inspection only, it is possible to use the EnviView s/w (for ERS and ENVISAT data in Envisat format) while the BEST s/w can be used for header analyses of level 0/RAW data both in Envisat and in CEOS (ERS) format. Note that NO further processing of level 0/RAW data is possible with either of the mentioned s/w which are freely available for download from ESA at: <http://earth.esa.int/resources/softwaretools/>

The NEST s/w also distributed by ESA can not be used for RAW/level 0 at all; i.e. no header inspection is possible with NEST.

6.3 Which orbit type is used in the processing of ERS SAR and Envisat ASAR data?

The ERS SAR and Envisat ASAR Near Real time (NRT) products are generated with the "Predicted" orbit, while for the nominal on demand production, the "Restituted" orbit is used. This implies that the "Precise" orbit is not directly applied for the on demand generation of ERS SAR and Envisat ASAR products.

The file type used can be found in the product header of the data.

Separate Precise Orbit files are not delivered together with the SAR/ASAR products, but access to a dedicated FTP server for retrieval of the Precise Orbit Files (DORIS VOR and ERS ORB.PRC) can be requested to EOHHelp with reference to relevant ESA project proposal ID.

See also separate FAQ on

"How to get access to ENVISAT DORIS Precise and Preliminary orbit data?"

and

"How to get access to ERS Precise and Preliminary Orbit data?"

6.4 How to extract compressed ERS/Envisat products delivered via FTP as .tar files - Winzip configuration?

In order to correctly extract ENVISAT/ERS products delivered via FTP in tar format (extension *.tar), WinZip has to be configured properly:

The option "TAR file smart CR/LF conversion" should not be selected (WinZip --> configuration --> miscellaneous)

Alternatively, one of the following programs can be used to extract the product files:

Freeware:

FilZip - <http://www.filzip.com/>

IZArc - <http://www.izarc.org/>

WinRAR - <http://www.win-rar.com/>

Open Source:

7Zip - <http://www.7-zip.org>

6.5 Differences between SAR processors VMP and PGS-ERS

The VMP processor was employed to generate the standard SAR products in CEOS format for both the ERS missions since the ERS-1 launch.

With the arrival of ENVISAT ASAR it was decided that in order to offer an extended family of ESA SAR products, the same core processor could be used to process ASAR and ERS data. This processor, PGS-ERS, has the same core processor as PF-ASAR, and is capable of processing ERS SAR data in both ENVISAT and CEOS format ensuring continuity with VMP products. The PGS-ERS processor became operational at all ESA PAFs in May 2006.

There are minor differences between CEOS products generated from VMP and PGS-ERS processor, but these differences are only related to auxiliary data not required for further processing. Normally the user may be able to combine the products from the processors, but may experience problems with InSAR applications. It should also be noted that although the PGS-ERS processor is an improvement over VMP it is not an upgrade, therefore not likely to be more or less accurate.

Please also refer to the Technical Note available on the ESA website which provides further details of differences between the products from the two processors - http://earth.esa.int/pub/ESA_DOC/SAR/VMP_PGS_products.pdf

6.6 How is the ERS SAR track and frame definition?

1. Ascending/Descending Node:

The ERS orbit is split in 7200 nodes and 400 are used to identify the SAR frames through the node closest to the frames' center. Therefore, the identifiers of two adjacent frames differ by 18 nodes. The first frame starts at the Equator and is identified by node 9, the last one by number 7191.

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The frames between number 9 to 1791 and 5409 to 7191 are in the ascending part of the orbit.

A satellite orbit is split in two parts:

- the ascending pass
- the descending pass

The ERS-1 satellite has the following scheme:

Equator	North Pole	Equator	South Pole	Equator
9	1800	3609	5400	7191
---ascending--- -----descending----- ---ascending---				

where the numbers are the standard frame numbers

2. DEFINITION OF ERS TRACK

$Track_n = (orbit + First_Track - Base_Orbit) \% Orbit_Cycle$

where:

Orbit : input orbit
 First_Track : track corresponding to the first orbit of the cycle
 Base_Orbit : the first orbit of the phase
 Orbit_Cycle : the number of orbits in one cycle
 % : remainder of the division (e.g. $5 \% 2 = 1$)

ERS-1

Phase A

126, // Start orbit
 2103, // End orbit
 43, // Number of Orbits in the Cycle
 3, // Number of Days of the Cycle
 29, // First Track Number in the Cycle

Phase B

2354, // Start orbit
 3695, // End orbit
 43, // Number of Orbits in the Cycle
 3, // Number of Days of the Cycle
 21, // First Track Number in the Cycle

Phase C

3901, // Start orbit
 12707, // End orbit
 501, // Number of Orbits in the Cycle
 35, // Number of Days of the Cycle
 249, // First Track Number in the Cycle

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Phase D
 12754, // Start orbit
 14300, // End orbit
 43, // Number of Orbits in the Cycle
 3, // Number of Days of the Cycle
 27, // First Track Number in the Cycle

Phase E
 14302, // Start orbit
 16745, // End orbit
 2411, // Number of Orbits in the Cycle
 168, // Number of Days of the Cycle
 1792, // First Track Number in the Cycle

Phase F
 16747, // Start orbit
 19247, // End orbit
 2411, // Number of Orbits in the Cycle
 168, // Number of Days of the Cycle
 2357, // First Track Number in the Cycle

Phase G
 19248, // Start orbit
 33788, // End orbit
 501, // Number of Orbits in the Cycle
 35, // Number of Days of the Cycle
 222, // First Track Number in the Cycle

ERS-2
 1, // Start orbit
 14102, // End orbit
 501, // Number of Orbits in the Cycle
 35, // Number of Days of the Cycle
 147, // First Track Number in the Cycle

DEFINITION OF ERS TRACK

Track_n = (orbit + First_Track - Base_Orbit)% Orbit_Cycle
 where:

Orbit : the one for which is desired to compute the track number
 First_Track : track corresponding to the first orbit of the cycle
 Base_Orbit : the first orbit of the phase
 Orbit_Cycle : the number of orbits in one cycle
 % : reminder of the division (e.g. 5%2=1)

6.7 Is it possible to get SAR data from the ERS-2 Commissioning Phase?

Data acquired during the ERS-2 Commissioning Phase is not available for ordering from the catalogue. Validated ERS-2 SAR data available for ordering is starting from orbit 1188 of 13 July 1995.

6.8 How to read ENVISAT DORIS precise orbits?

The DORIS POR and VOR files orbit files can be opened with the EnviView software which is freely available for download at: <http://envisat.esa.int/services/enviview/>. Regarding the format description, please refer to the Section about the "ENVISAT Product Format" available under the "Help" menu in EnviView.

As an example; Looking for the DOR VOR file containing an acquisition on 5 March 2005, the following file covering the period 4 - 6 March 2005 should be selected:

The DORIS file name can be read as indicated in the sample below:

File name:

DOR_VOR_AXVF-P20050407_094400_20050304_215528_20050306_002328

20050407_094400 = Processing date and time => 7 April 2005 at 09:44:00

20050304_215528 = Sensing start day and time => 4 March 2005 at 21:55:28

20050306_002328 = Sensing stop day and time => 6 March 2005 at 00:23:28

6.9 Where to find information on the ENVISAT ASAR Modes, Swath and Polarisation?

All 5 available ASAR Modes, including the selected swaths and polarisation are operated exclusively. This means that for the one and same acquisition, only one of the options can be

tasked for programming. ASAR Wide Swath is thus in conflict with ASAR Image Mode and/or Alternate Polarisation Mode, and it is only possible to have one of the 3 AP modes over the same acquisitions.

Extensive information regarding the ASAR data characteristics and applications is provided in the ENVISAT Product Handbook / User Guide on the Envisat Web pages at <http://envisat.esa.int/handbooks/asar/>. See also the publication ASAR SP-1225 - "ENVISAT ASAR Science and Applications" available in full text at http://earth.esa.int/pub/ESA_DOC/SP_1225.pdf

6.10 How to read the ENVISAT product file names?

The standard ENVISAT naming convention is reported in the following document:

PO-RS-MDA-GS-2009
TITLE: ENVISAT-1 PRODUCTS SPECIFICATIONS
ANNEX A: PRODUCT DATA CONVENTIONS

The document is available in full text on the Envisat Web page at:
http://earth.esa.int/pub/ESA_DOC/ENVISAT/AnnexA_Data_Convention_3e.pdf

The product file name convention is the same for all Envisat instruments.
Below is an example of an ASAR IMS product file name which should read as follows:

ASA_IMS_1PNPDE20070821_165527_000000172061_00012_28623_9672.N1

ASA_IMS_1P = Product ID = ASAR Image Mode Single Look Complex Level 1P
N = Processing stage flag (e.g. N = NRT product)
PDE = Originator ID / Processing Facility (e.g. PDE= PDHS-E)
20070821 = Start day (YYYYMMDD) 21 Aug 2007
165527 = StartTime (16:55:27 UTC)
000000172061= Duration - (17 seconds) 2 (phase) 061 (cycle)
00012 = Relative orbit / track
28623 = Absolute orbit
9672 = Product type file counter
N1 = Satellite ID (N1 = Envisat-1)

6.11 Where to find Envisat MERIS format Specifications and Reader s/w?

The ENVISAT products are binary files formatted in a proprietary format, and the software EnviView has been developed to read and display the content of any product on all common computer platforms. Also a Toolbox (BEAM) to read and perform basic manipulations of ENVISAT MERIS data is freely available for download along with EnviView at:
http://envisat.esa.int/services/tools_table.html

Furthermore, extensive information on the ENVISAT MERIS instrument and products can be found in the "Product Handbook/User Guide" section at:
<http://envisat.esa.int/dataproducts/meris/>.

For the MERIS product and format descriptions in particular you should go to:

Chapter 2
MERIS Products and Algorithms
<http://envisat.esa.int/handbooks/meris/CNTR2.htm>

Chapter 6
MERIS Data Formats Products
<http://envisat.esa.int/handbooks/meris/CNTR5.htm>

See also the MERIS Product Specifications directly at
http://earth.esa.int/pub/ESA_DOC/ENVISAT/Vol11_Meris_5b.pdf

6.12 Where to find Envisat ASAR format Specifications and Reader s/w?

The ENVISAT products are binary files formatted in a proprietary format, and the software EnviView has been developed to read and display the content of any product on all common computer platforms. The ENVISAT product format specifications are available in the HELP option in EnviView . Also a Toolbox (NEST) to read and perform basic manipulations of ENVISAT (A)SAR data is freely available for download along with the EnviView s/w at:
<http://earth.esa.int/resources/softwaretools/>

Furthermore, you will find the ENVISAT product and format descriptions in the "Product Handbook" section on the Envisat Web site at <http://envisat.esa.int/>. For ASAR in particular, you should go to:

Chapter 2
ASAR Products and Algorithms
<http://envisat.esa.int/handbooks/asar/CNTR2.htm>

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and

Chapter 6

ASAR Data Formats Products

<http://envisat.esa.int/dataproducts/asar/CNTR6.htm>

See also the ASAR Product Specifications directly at:

http://earth.esa.int/pub/ESA_DOC/ENVISAT/Vol08_Asar_4B_20071025.pdf

6.13 ENVISAT - What is the difference between a _oC (Child) and a _oP product?

The "_oC" product is a level 0 "Child" product which is an extraction of a set of data from a parent product. See definition under "Child Product" at <http://envisat.esa.int/handbooks/asar/CNTR5-3.htm>

With respect to a nominal level "oP" product the format will be the same but the length is different compared to the standard scene (_oP product).

6.14 How to extract a subset from a longer Envisat .N1 segment?

In order to get a subset from a longer product it is possible to use commercial software (e.g. Envi, PCI Geomatica, ERDAS) or to use the EnviView subroutine "PdsSubset". The EnviView s/w is freely available on the ESA Earthnet Online Home page at <http://earth.esa.int/enviview/>

Note that only the "Measurement Data Set Record" (MDSR) is extracted; therefore the header information is not contained within the product subset.

6.15 Where to find orbital metadata in ALOS products?

Information on the ALOS orbit can be found in the work report file (also called summary report). See further details below.

1/ Orbit number can be found in the name of the scene.

Scene name follows a rule: ALPSMoooooffff-O1B1-xxx
oooo: 5 digit for orbit number,
ffff: 4 digit for frame number.
O1B1: products' level (here level 1)

The scene name is identified by the variable Scs_SceneID=

Ex: Scs_SceneID="ALPSMN168952990"
Orbit=16895 / Frame=2990

2/ Level product is referred in variable Pds_ProductID
Ex: Pds_ProductID="O1B1" for level 1 product.

3/ other information on orbit precision:
In work report file, 2 lines give orbit information.

One line indicates if the orbit computation has been checked and the result of this check. Variable name=Ach_PrecisionOrbitCheck

A second line indicates if precise orbit has been computed, or if it couldn't be computed. Variable name=Pds_OrbitDataPrecision.

These 2 lines could display warning and the reason of the warning.

These variables relative to the orbit are available in the work report file for all product levels.

7 PROJECT PROPOSAL / REGISTRATION MANAGEMENT

7.1 How to get information on Project Proposal submission, Fast Registration, Progress reports etc?

Answers to questions related to Category-1 proposal submission procedures, Fast Registration, Filling of proposal, Progress reports, quota extension etc, are available in a separate FAQ list accessible in the "Information" area on the EOPI (Earth Observation Principal Investigator) portal at <http://eopi.esa.int/> or directly at <http://eopi.esa.int/esa/docs/doc/download/FAQ.pdf>

7.2 How to get additional data which was not specified in the original Registration?

If the additional data is available via a simple Registration (check the list for Free Datasets published at <http://eopi.esa.int/online>), please contact EOHelp (Eohelp@esa.int) referring to the existing project code ID and specifying the exact additional products required.

If the data is not available via simple registration (Restrained Dataset), please contact EOPI (eopi@esa.int) to get instructions on how to convert the Registration in a Project proposal.

7.3 How to get additional data/Quota extension for Restrained Datasets on existing Project Proposals?

In order to ask for an extension of the quota for Restrained Datasets, the PI of the project should submit a progress report on the EOPI web site at <http://eopi.esa.int>. It should be specified in the "Problem" section the reason why additional datasets are needed, expected contribution to the research as well as the amount and type of the requested products. Please ensure to check the box "Additional Data requested".

The request will then be further evaluated.

If the additional data is available via a simple Registration (check the list for Free Datasets published at <http://eopi.esa.int/online>), you may contact EOHelp (Eohelp@esa.int) referring to the existing project code ID and specifying the exact additional products required.