

(A)SAR On-The-Fly

Data Dissemination and Processing

Service User Manual

ASAR-OTF-UM, version 2.3, 11/06/2021

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Introduction

The (A)SAR On-the-fly (OTF) data processing and dissemination service allows end-users to gain direct access to ESA’s complete high and medium resolution (A)SAR imagery archive from the ERS-1, ERS-2 and Envisat Missions.

The service is available via the ESA Online Dissemination Service available at <https://esar-ds.eo.esa.int/oads/access>

Data available

The service provides the following Level 1 (L1) products:

- ERS-1 and ERS-2 SAR Image Mode: SAR_IMS_1P, SAR_IMP_1P, SAR_IMM_1P¹
- ENVISAT ASAR Image Mode: ASA_IMS_1P, ASA_IMP_1P, ASA_IMM_1P¹
- ENVISAT Alternating Polarization Mode: ASA_APS_1P, ASA_APP_1P, ASA_APM_1P¹
- ENVISAT Wide Swath Mode: ASA_WSS_1P, ASA_WSM_1P¹
- ENVISAT Global Monitoring Mode: ASA_GM1_1P¹

¹ The full mission archive of the ERS-1/2 and Envisat Medium Resolution and Global Monitoring Level 1 data (IMM, APM, WSM, GM1) has been bulk processed and is available for direct download “as is”, i.e. no on-the-fly processing is required.

L1 products generated on-the-fly are provided as fixed standard scenes in Envisat format, processed from Level 0 on user request by the system. An overlap between scenes has been added to mitigate the case of a feature being split between two scenes.

Access to the Service

Although nominally only L1 products are made available, limited amounts of Level 0 (L0) data can also be downloaded by users through the service. Access to L0 data requires the user to complete a data service request while access to the standard L1 data service requires login with the ESA EO Sign In account (see FAQ [KB0011152](#)).



The screenshot shows the ESA Online Dissemination Service homepage. At the top, there is a blue header with the ESA logo on the left, the text 'Online Dissemination' in the center, and 'European Space Agency' on the right. Below the header is a dark blue navigation bar with 'ESA' on the left and 'Not signed in' on the right. In the top right corner of the main content area, there are two buttons: 'Collections' and 'Login'. The main content area has a light blue background and is titled 'Welcome to ESA Online Dissemination'. The text below the title describes the service as an online EO products cache and provides a list of services: user authentication and authorization, and data access via common web protocols such as HTTP(s). It also includes instructions on how to use the service and links to the (A)SAR OTF user manual and a simple request for support.

Browsing the catalogue is possible without being logged in. Select the “Collections” button in the upper-right corner of the ESA Online Dissemination Service home page. Then click on the collection of your interest. The “Info” button takes you to the dataset description page in Earth Online.

For data processing and download instead, press the “login” button in the upper-right corner of the page to log in:

- If you do not have an EO Sign In account, follow the instructions described in FAQ [KB0011220](#) to register²

² ESA EO data users already having an ESAAD account are required to follow the procedure described in FAQ [KB0011226](#)

- If you have an account, you can log in to download the data products of your interest. Upon first access, your consent to share some personal information will be requested.

Downloading products via the ESA Online Dissemination Service

The ESA Online Dissemination Service allows for search and download of data from the various product collections in the following different ways:

- Catalogue search (SO-Cat)
- Interferometric search
- Search in collection by Treeview
- Search in collection by Filename

Use of the Simple Online Catalogue (SO-Cat)

The Web-User Interface of the Simple Online Catalogue (SO-Cat) allows data product search on the metadata fields and metadata inspection of the matching data items including the available browse image.

Note that the collections are independent and it is not possible to search products from multiple collections at the same time.

ESA Not signed in

[Collections](#) [Login](#)

Welcome to ESA Online Dissemination

The ESA EO products online search service is a collection-based functionality; available collections data can be searched and accessed.

Collection	Information page
ASA_IM_0P - Level 0 Scenes product for ENVISAT ASAR Image Mode	Info
ASA_IMS_1P - Level 1 product for ENVISAT ASAR Image Mode	Info
ASA_IMP_1P - Level 1 product for ENVISAT ASAR Image Mode	Info
ASA_IMM_1P - Level 1 Medium Resolution product for ENVISAT ASAR Image Mode	Info
ASA_AP_0P - Level 0 Scenes product for ENVISAT ASAR Alternate Polarisation Mode	Info
ASA_APS_1P - Level 1 product for ENVISAT ASAR Alternating Polarisation	Info
ASA_APP_1P - Level 1 product for ENVISAT ASAR Alternating Polarisation	Info
ASA_APM_1P - Level 1 Medium Resolution product for ENVISAT ASAR Alternate Polarisation Mode	Info
ASA_WS_0P - Level 0 Scenes product for ENVISAT ASAR Wide Swath Mode	Info
ASA_WSS_1P - Level 1 product for ENVISAT ASAR Wide Swath	Info
ASA_WSM_1P - Level 1 Medium Resolution product for ENVISAT ASAR Wide Swath Mode	Info
ASA_GM_1P - Level 1 product for ENVISAT ASAR Global Monitoring Mode	Info
SAR_IM_0P - Level 0 Scenes data for ERS SAR	Info
SAR_IMS_1P - Level 1 product for ERS SAR	Info
SAR_IMP_1P - Level 1 product for ERS SAR	Info
SAR_IMM_1P - Level 1 Medium Resolution product for ERS SAR	Info

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esa Online Dissemination European Space Agency


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ESA Online Catalogue - Search Form

[back to collections](#)

Collection ASA_IMS_1P

Level 1 products for ENVISAT ASAR Image Mode Single-Look Complex
More information can be found in this page:
Fill in your selection criteria search the matching products.



Format:

Items per page:

Geographical coverage:

Acquisition date:

Orbit number:

Orbit direction:

Track:

Frame:

Swath ID:

Polarisation channels:

[back to collections](#)

1. Select your area of interest (AOI) by manual drawing of a bounding box on the map and enter your search parameters, following the instructions provided in the figure here below:

ESA | earth.esa.int

ESA Online Catalogue - Search Form

[back to collections](#) ① collection information

Collection ASA_IMP_1P

Level 1 products for ENVISAT ASAR Image Mode Precision Image
More information can be found in this page.

Fill in your selection criteria search the matching products.

Format ② result format selection

Items per page

Geographical coverage

Acquisition date

Orbit number

Orbit direction ④ metadata search form

Track

Frame

Swath ID

Polarisation channels

⑤ search query submission

[back to collections](#) ⑥ return link to Sx-Cat front page

The search response can be requested in one of the three available formats:

- HTML response;
- bulk download lists providing the list download URLs of the matched records in various formats;
- plain text response returning full metadata records as a tab separated values file (TSV, similar to CSV).

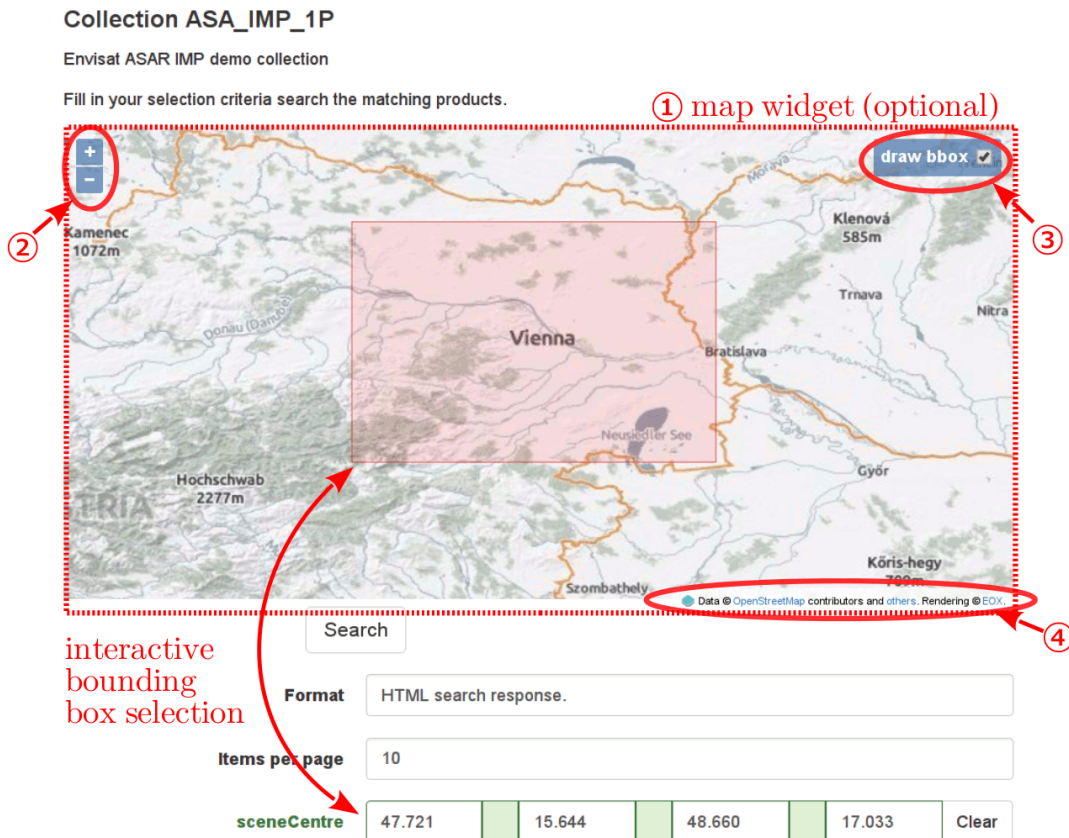
The HTML response displays the data item identifier, download link, thumbnail and a link to the product browse (if available), as well as a subset of the data item metadata fields. The HTML further contains a link to the full metadata record view which displays for one data item the complete metadata record held by the catalogue.

The HTML and the bulk download response lists are cross-linked, i.e. it is possible to change from the paged response browsing to the bulk download and vice versa. It is also possible to step back to the search form and refine the query.

Beside the simple product searches, the SO-Cat module also supports searches for correlated pairs of products. This feature is used to search and download pairs of ERS SAR and Envisat ASAR products suitable for interferometric processing.

Collection ASA_IMP_1P
Envisat ASAR IMP demo collection

Fill in your selection criteria search the matching products.



① map widget (optional)

②

③

④

interactive bounding box selection

Search

Format HTML search response.

Items per page 10

sceneCentre 47.721 15.644 48.660 17.033 Clear

The map widget consists of the following items:

- interactive map allowing panning (click & drag) and zooming (mouse wheel);
- zoom buttons allowing zooming by a click;
- “draw bbox” check-box switching between the map panning (unchecked) and bounding box drawing (checked) mode;

The bounding box drawing is coupled with the bounding box input form (usually sceneCentre or footprint). When a bounding box is drawn on the map the bounding box form input gets filled by the coordinates of the displayed box and, vice versa, when the bounding box input form gets edited the rectangle displayed on the map gets redrawn accordingly.

2. Click on “Search” to launch the query. The result window shows the searched products on the map and a list with metadata overview underneath.

ESA - Simple Online Catalogue - Search Result

back to search form | bulk download lists

Collection test_asar

Test Data - Envisat/ASAR collection

Search result page 6 of more than 11 pages (10 of more than 110 records found in 0.012 seconds).

ASA_IM_0PNESA20091103_102737_00000015A079_00008_40142_0000

download | metadata | browse image

platformShortName	2009-12-01T09:07:21Z
instrument	408
recordLastUpdate	3159
availabilityTime	2014-12-09T09:25:19Z
availabilityTime	2009-12-01T09:07:21Z

back to search form | bulk download lists

Click on a product footprint on the map to highlight the product from the list and, reciprocally, select a product in the list and visualize the footprint on the map.

ESA Online Catalogue - Search Result

back to search form | bulk download lists

Collection ASA_IMP_1P

Level 1 products for ENVISAT ASAR Image Mode Precision Image
More information can be found in this page.

Search result page 1 of 4 pages (10 of 35 records found in 0.107 seconds).

ASA_IMP_1PNEESA20100602_094907_000000152090_00022_43162_0000

Download Product | Product Info | Browse

beginAcquisition	2010-06-02T09:49:07.876Z
swathIdentifier	IS2
orbitDirection	DESCENDING
orbitNumber	43162
track	22
frame	2673
polarisationChannels	VV

ASA_IMP_1PNEESA20100602_094922_000000152090_00022_43162_0000

Download Product | Product Info | Browse

3. Click on "Product info" link to view the detailed metadata of a product.
4. Click on "Download Product" to get the product. If the product is already available the download will start immediately, otherwise the foreseen time of the download start is shown.

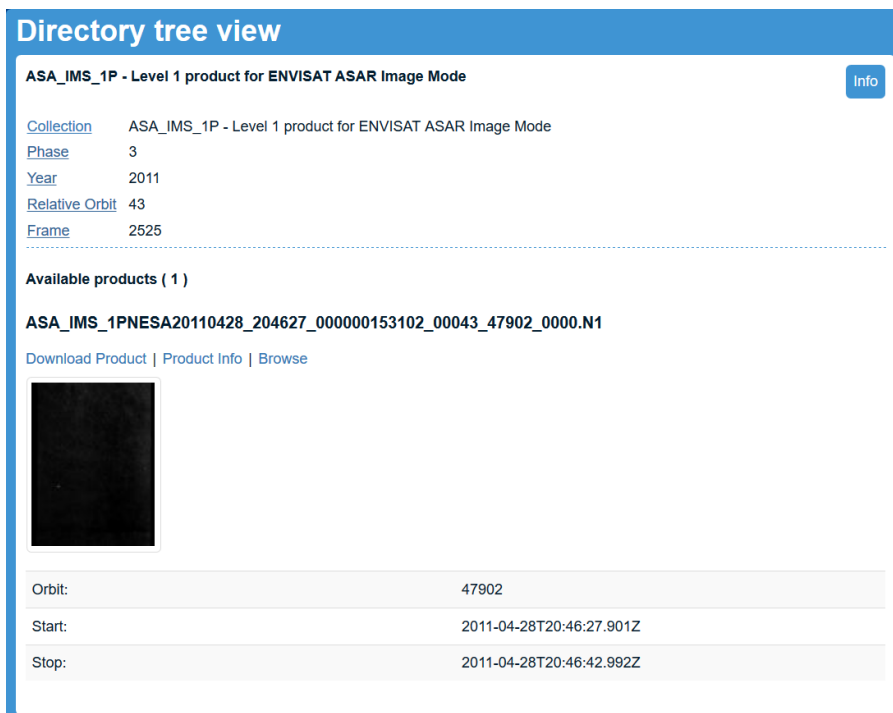


Treeview & Filename - search and download

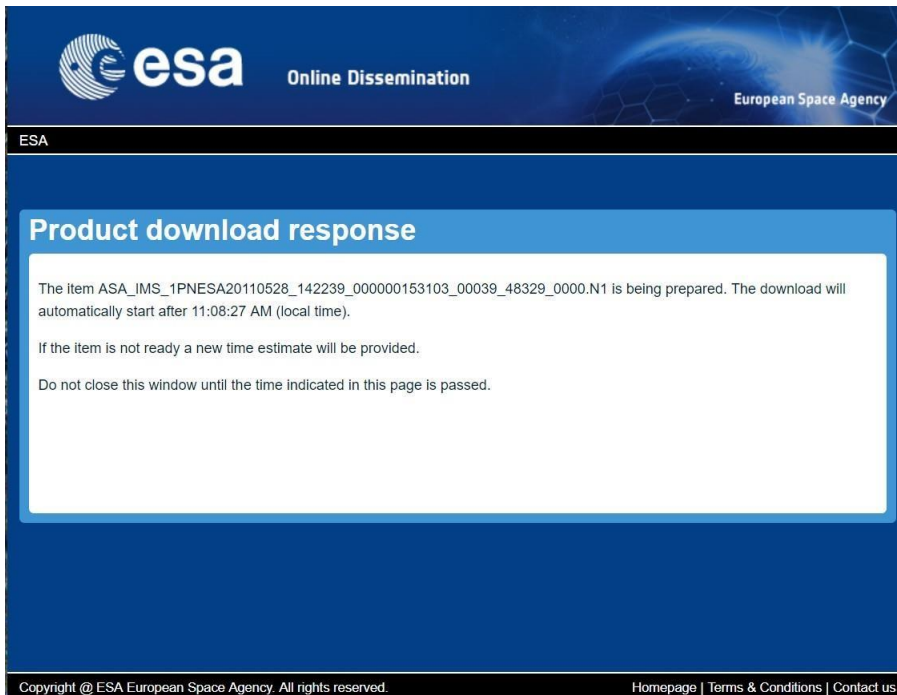
1. Click on a collection then select “Search in collection by treeview”. Select sequentially the appropriate:
 - Mission phase
 - Year
 - Relative orbit
 - Frame

If you know all or part of the product name you can also “search by filename” in a given collection.

2. You will now see the product page. To download, select “Download Product”.



If accepted, the ‘Product download response’ page will show, containing the estimated timefor the start of the automatic download.



3. Wait until your computer shows the estimated local time, then press “reload”. The download will start. Depending on your browser settings, you may be prompted for a download location.

Interferometric Search

The catalogue search also offers the option to identify correlated pairs of products. The Envisat ASAR and ERS SAR interferometric searches are applicable to the following OTF collections:

- ERS SAR/Envisat ASAR L0 IM;
- ERS SAR/Envisat ASAR L1 IMS;
- Envisat ASAR L0 AP;
- Envisat ASAR L1 APS;
- Envisat ASAR L0 WS;
- Envisat ASAR L1 WSS;

Each pair of products consists of the master (primary) and slave (secondary) product.

The pair search form is similar to the single product search form. The inputs of the search constraints are divided into three groups:

- master product constraints – which restrict the selection of the master products independently of the slaves selection
- slave product constraints – which restrict the selection of the slave products independently of the masters selection

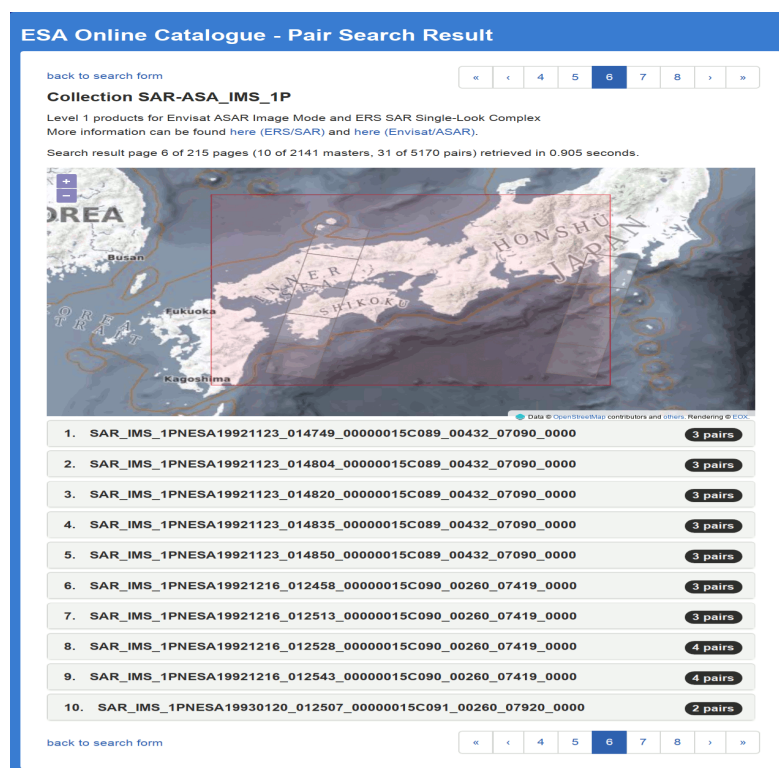
- product pair offset constraints – which restrict the selection based on the relationship between the master and slave products

In addition to the displayed pair constraints requiring user-defined parameters, the catalogue has a set of configured pair constraints (implicit constraints) which are fixed and not visible to the user.

The search request is submitted to the server by pressing the ‘Search’ button.

The pair search response is visually similar to the plain search HTML response. The pair search response is paginated and consists of the common collection title, brief query statistics, optional map widget showing the AOI and footprints of the matched products and the list of the matched product pairs.

Initially, the map widget displays footprints of the master products and the product pair list displays a list of the folded groups, one for each master product. Each of the folded groups is numbered to allow easier orientation. A folded group shows the number of pairs it contains and the master product identifier as a title.



ESA Online Catalogue - Pair Search Result

back to search form

Collection SAR-ASA_IMS_1P

Level 1 products for Envisat ASAR Image Mode and ERS SAR Single-Look Complex
More information can be found [here \(ERS/SAR\)](#) and [here \(Envisat/ASAR\)](#).

Search result page 6 of 215 pages (10 of 2141 masters, 31 of 5170 pairs) retrieved in 0.905 seconds.

Map showing the Area of Interest (AOI) and footprints of the matched products over Japan.

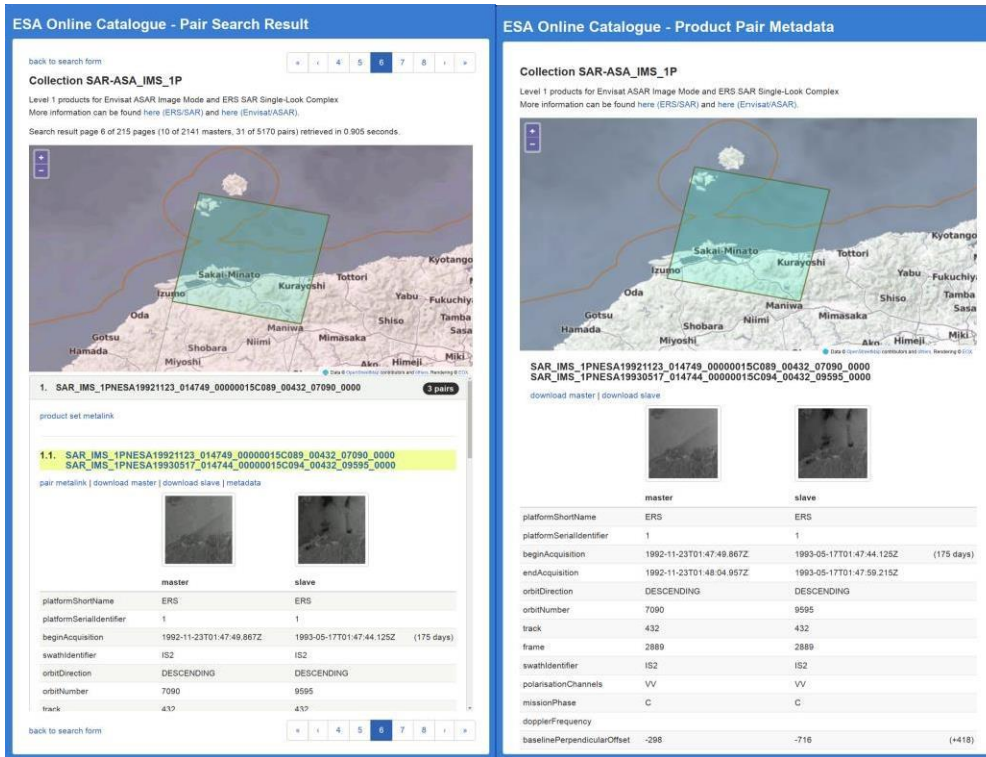
1. SAR_IMS_1PNESA19921123_014749_00000015C089_00432_07090_0000	3 pairs
2. SAR_IMS_1PNESA19921123_014804_00000015C089_00432_07090_0000	3 pairs
3. SAR_IMS_1PNESA19921123_014820_00000015C089_00432_07090_0000	3 pairs
4. SAR_IMS_1PNESA19921123_014835_00000015C089_00432_07090_0000	3 pairs
5. SAR_IMS_1PNESA19921123_014850_00000015C089_00432_07090_0000	3 pairs
6. SAR_IMS_1PNESA19921216_012458_00000015C090_00260_07419_0000	3 pairs
7. SAR_IMS_1PNESA19921216_012513_00000015C090_00260_07419_0000	3 pairs
8. SAR_IMS_1PNESA19921216_012528_00000015C090_00260_07419_0000	4 pairs
9. SAR_IMS_1PNESA19921216_012543_00000015C090_00260_07419_0000	4 pairs
10. SAR_IMS_1PNESA19930120_012507_00000015C091_00260_07920_0000	2 pairs

back to search form

By clicking on a folded group or on its corresponding footprint the group unfolds showing the matched product pairs of the same master product.

The unfolded group shows a list of the product pairs. Each of the list item is similar to the product record view of the plain search. The main difference is that the product pair list items show metadata of both products.

The item title shows identifiers of both the master and slave products. Each of the items is numbered to allow easier orientation on the page. Clicking on the title causes both the master and slave footprints to be highlighted on the map.



ESA Online Catalogue - Pair Search Result

back to search form

Collection SAR-ASA_IP

Level 1 products for Envisat ASAR Image Mode and ERS SAR Single-Look Complex
More information can be found here (ERS/SAR) and here (Envisat/ASAR).

Search result page 6 of 215 pages (10 of 2141 masters, 31 of 5170 pairs) retrieved in 0.905 seconds.

1. SAR_IPNESA19921123_014749_00000015C089_00432_07090_0000 **3 pairs**

product set metalink

1.1. SAR_IPNESA19921123_014749_00000015C089_00432_07090_0000
SAR_IPNESA19930517_014744_00000015C094_00432_09595_0000

pair metalink | download master | download slave | metadata

	master	slave
platformShortName	ERS	ERS
platformSerialIdentifier	1	1
beginAcquisition	1992-11-23T01:47:49.867Z	1993-05-17T01:47:44.125Z (175 days)
swathIdentifier	IS2	IS2
orbitDirection	DESCENDING	DESCENDING
orbitNumber	7090	9595
track	432	432

back to search form

ESA Online Catalogue - Product Pair Metadata

Collection SAR-ASA_IP

Level 1 products for Envisat ASAR Image Mode and ERS SAR Single-Look Complex
More information can be found here (ERS/SAR) and here (Envisat/ASAR).

SAR_IPNESA19921123_014749_00000015C089_00432_07090_0000
SAR_IPNESA19930517_014744_00000015C094_00432_09595_0000

download master | download slave

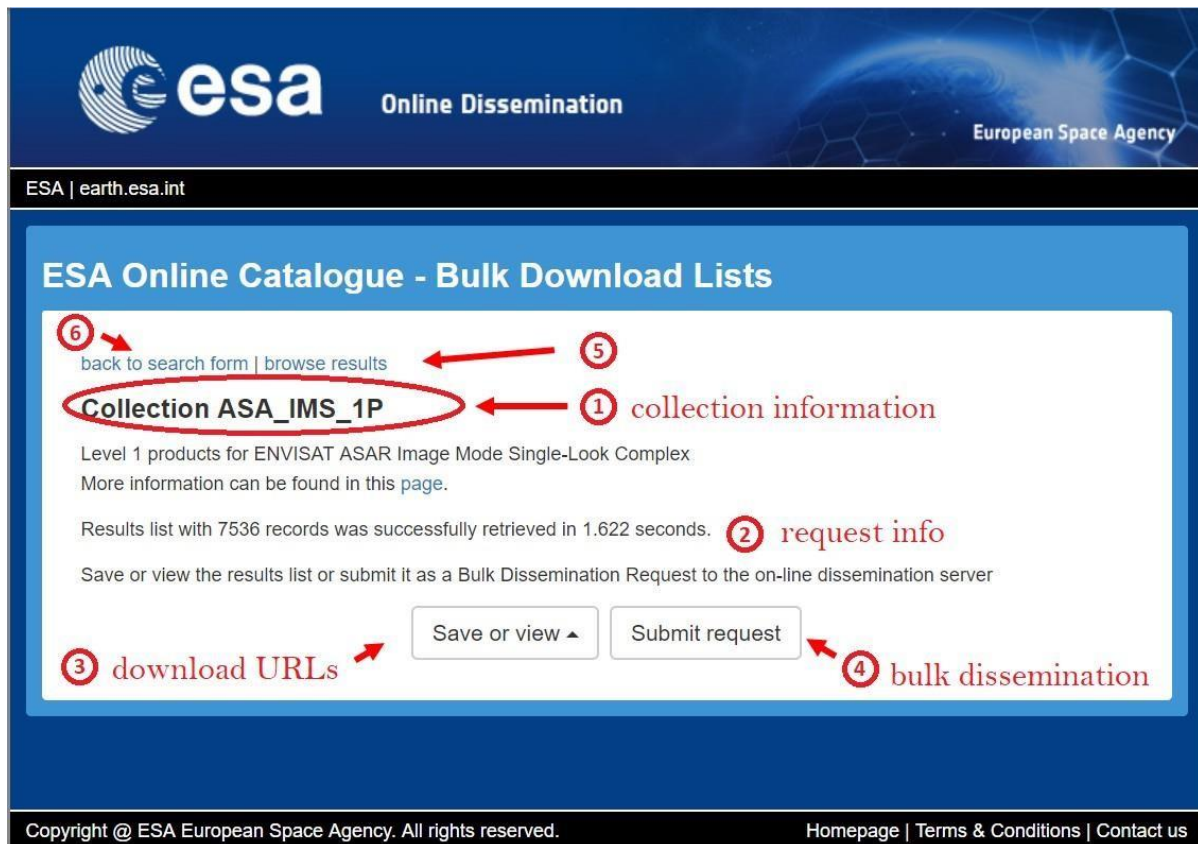
	master	slave
platformShortName	ERS	ERS
platformSerialIdentifier	1	1
beginAcquisition	1992-11-23T01:47:49.867Z	1993-05-17T01:47:44.125Z (175 days)
endAcquisition	1992-11-23T01:48:04.957Z	1993-05-17T01:47:59.215Z
orbitDirection	DESCENDING	DESCENDING
orbitNumber	7090	9595
track	432	432
frame	2889	2889
swathIdentifier	IS2	IS2
polarisationChannels	VV	VV
missionPhase	C	C
dopplerFrequency		
baselinePerpendicularOffset	-296	-716 (+418)

Each of the pair items shows a table containing a subset of the master and slave product metadata; an offset between the two metadata values is also displayed (e.g. number of days between the acquisitions) as well as the Baseline Perpendicular offset.

If available the product thumbnail is displayed. The thumbnail serves as a link to the browse image (when the product has a browse image). When a product has a browse image link but no thumbnail, a simple HTML link is displayed instead.

Bulk Download

The catalogue provides a HTML view allowing easy retrieval of the list of product download URLs in various formats suitable for bulk download. For the selected collection, this list can be directly submitted to the on-line bulk dissemination of the OADS server.



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ESA Online Catalogue - Bulk Download Lists

back to search form | browse results

Collection ASA_IMS_1P

Level 1 products for ENVISAT ASAR Image Mode Single-Look Complex.
More information can be found in this page.

Results list with 7536 records was successfully retrieved in 1.622 seconds.

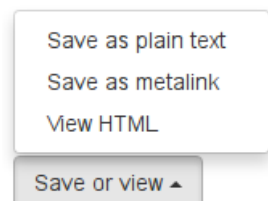
Save or view the results list or submit it as a Bulk Dissemination Request to the on-line dissemination server

Save or view ▲ Submit request

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The Web User Interface consists of:

- 1) collection identification (the collection identifier and optional human readable collection title);
- 2) information about the search result (number);
- 3) URL list retrieval pop-up button* with format selection, allowing saving or viewing of the download URLs in:
 - simple plain text format containing one data item download URL per line;
 - Metalink XML file;
 - simple HTML view allowing easy URL extraction by the browser download managers.
- 4) submission of the on-line bulk dissemination request to the OADS server (the button is not displayed if the bulk dissemination request cannot be submitted);
- 5) link to the paged HTML search response
- 6) return link to the link to the SO-Cat search form allowing modification of the search parameters

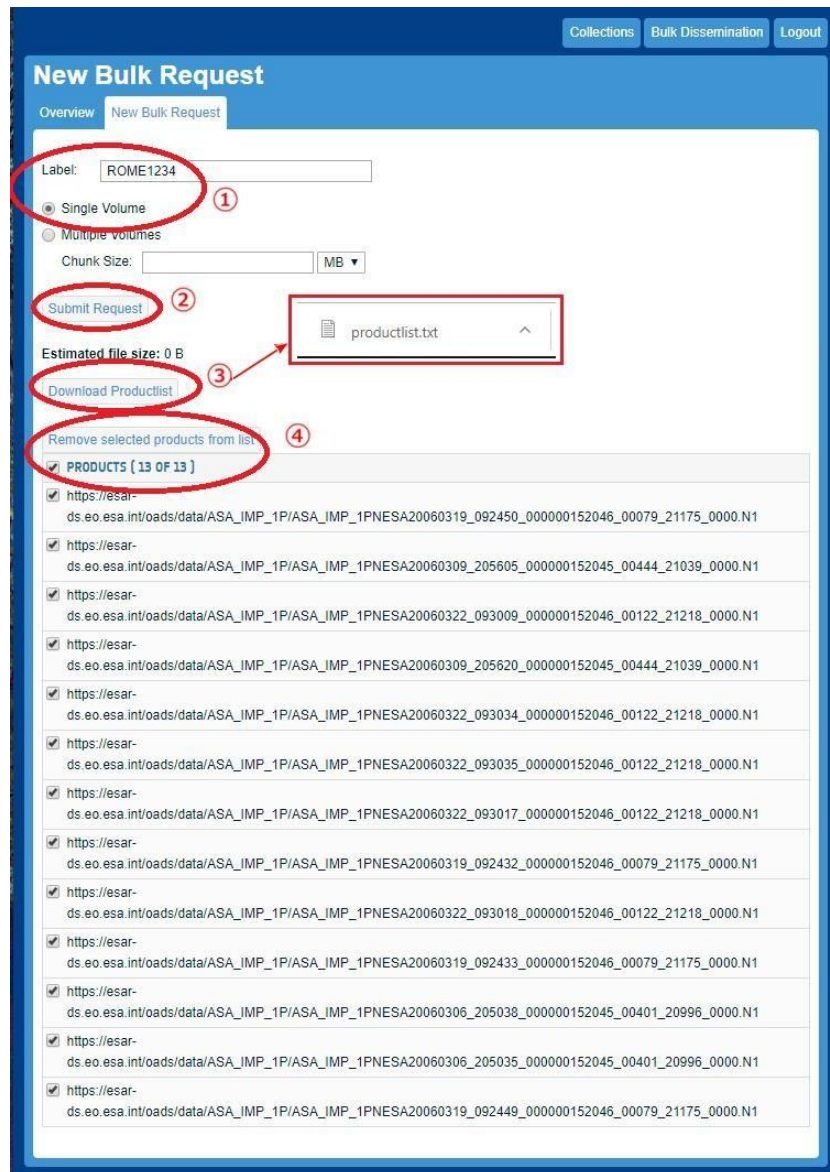


The Bulk Request Interface contains the following fields/buttons (see picture below for reference):

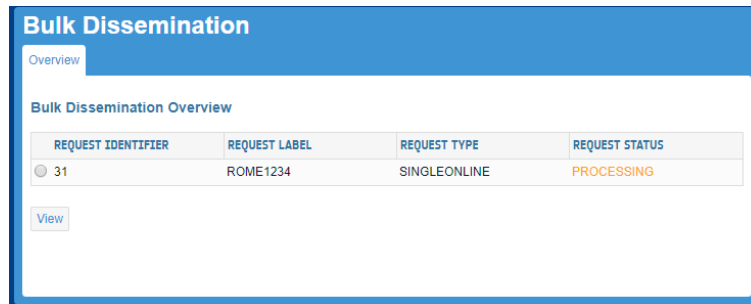
- Label, allowing the user to insert an identification of his/her request, by inserting

alpha-numeric characters; Single/Multiple volume, allowing the user to choose between the data download in one shot or in packages with pre-defined size;

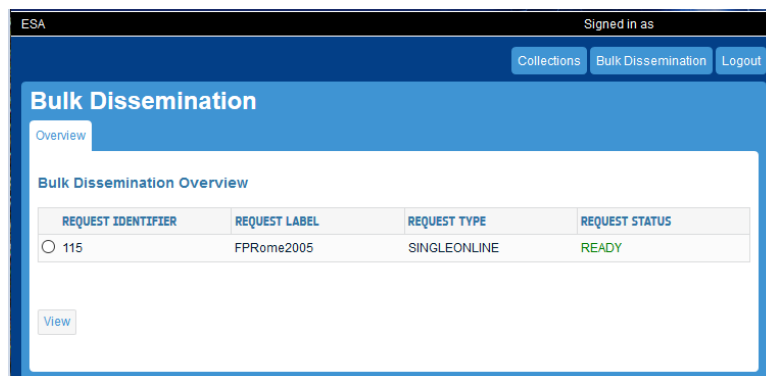
- Submit Request button;
- Download Product List, allowing the user to get the product list in txt format, before request submission;
- Remove selected products from list button, allowing the user to cancel the selected products from the list before submission



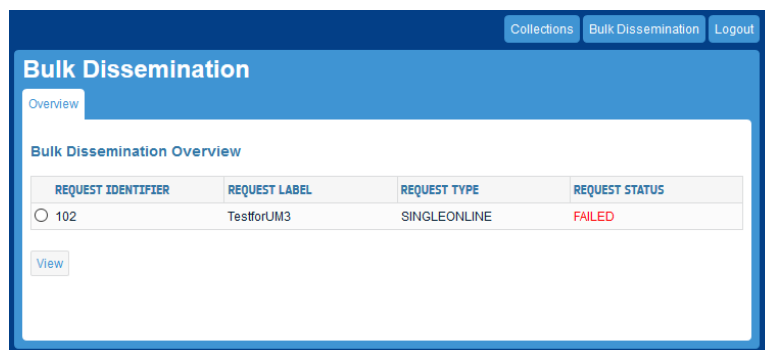
After bulk request submission, the user will get the following request status message:



If the processing is successful the request status will change to READY. The User can select the Request Identifier radio button and press View. The View request page shows, including: product _List, Manifest, Unavailable product List (if issued) in txt format and the 'Download package' button to start products package(s) download.



If the processing is not successful the request status will change to FAILED



The failure can be due to one of the following cases:

- none of the requested products has been successfully processed/retrieved or
- the bulk dissemination request contains duplicate items in the Requested Product List (the duplication issue is going to be fixed in a future release)

If the processing is not thoroughly successful, the request status will change to PARTIAL.

71	b6769f279a2945bc984	ERSDAQ19970101	SINGLEONLINE	PARTIAL
	5356ac530d8a7@eo-			
	ss0-idp.eo.esa.int			

The partial status usually occurs for one of the following reasons:

- Some of the requested products failed to be processed
- Some of the requested products failed to be retrieved (time out error)
- Both of the above

NOTE:

- The bulk download functionality is only allowed for download of products from the (A)SAR Level 1 collections
- The bulk download is not available for Level-0 data
- SO-Cat limits the maximum number of returned records of the download URL lists to 100
- SO-Cat limits the maximum number of parallel Bulk Dissemination Requests submissions to 2

Daily product quotas

Anyone may self-register to download (A)SAR data using the procedure described above, under section “Access to the Service”. **Standard users and Advanced users** are guaranteed a specified number of L1 products per collection per day (20 for Standard users and 30 for Advanced users), known as the quality of service (QoS). Once they have exceeded their QoS they may continue to submit requests. The system will accept the requests if the system load is currently low (i.e. if no other users have outstanding requests) and will reject them if the system load is high (i.e. if other users, who have not exceeded their QoS, have pending requests). The aim is to allow users to download as much data as they need, as long as this does not interfere with other users.

Some users can be assigned as **advanced+ users**: this is the same as advanced users, but with additional access to L0 data. L0 access will only be granted in special cases. L0 data are provided as standard scenes and are subject to the same QoS restrictions as L1 but with an additional restriction of 100 products per collection per year.

The values of the quotas for the different categories are summarised in the table below. All values apply per collection, i.e. separately to ASAR IM, AP and WS and to SAR IM. Daily quotas refer to the period from 00:00 to 23:59 CET, while “year” refers to a calendar year.

User Category	L1 product quota	L0 product quota
Standard	20(*) scenes / day	No access
Advanced	30(*) scenes / day	No access
Advanced+	30(*) scenes / day	30(*) scenes / day 100 scenes / year

(*) a higher value may be possible subject to overall system use.

Possible Errors

The system is currently serving the granted requests of other users and has reached the total number of parallel downloads.

The number of concurrent users has exceeded the capacity of the system to download products. Try resubmitting your request again later.

Product unavailable

The system has not been able to produce the requested product due to an unexpected error, e.g. a missing AUX file. If you still require this product, please contact EOHelp by raising a [simple request](#) into the ESA Earth Observation User Services Portal (TellUs).

Resource couldn't be accessed, Internal server error, Java exception, Operation timed out

These error messages usually mean a temporary connection error or system outage. Try resubmitting the request again after a few minutes. If it still doesn't work, contact EOHelp by raising a [simple request](#) into the ESA Earth Observation User Services Portal (TellUs).

Download authorization failure (Bulk dissemination)

Not able to add products. Reason: The number of products requested exceeds the maximum allowed product number limit of 100 products.

Forbidden: Please sign the terms and conditions

You are not authorised to access these data products. Please apply for them as described in "Access to the service".

Quality Control

Detailed product quality information for **Envisat ASAR** data is given online at:

<https://earth.esa.int/eogateway/instruments/asar/quality-control-reports/products-anomalies>

Detailed product quality information for **ERS-1/2 SAR** data is given online at:

<https://earth.esa.int/eogateway/instruments/sar-ers/quality-control-reports>

In particular, users should be aware that ERS-2 data from January 2001 onwards shall be used with caution as they were acquired under degraded attitude conditions.

Further Assistance

For assistance, please contact ESA's Earth Observation Help Desk, by raising a [simple request](#) into the ESA Earth Observation User Services Portal (TellUs).

A list of current known issues will be maintained in the [FAQ section page](#) in TellUs.