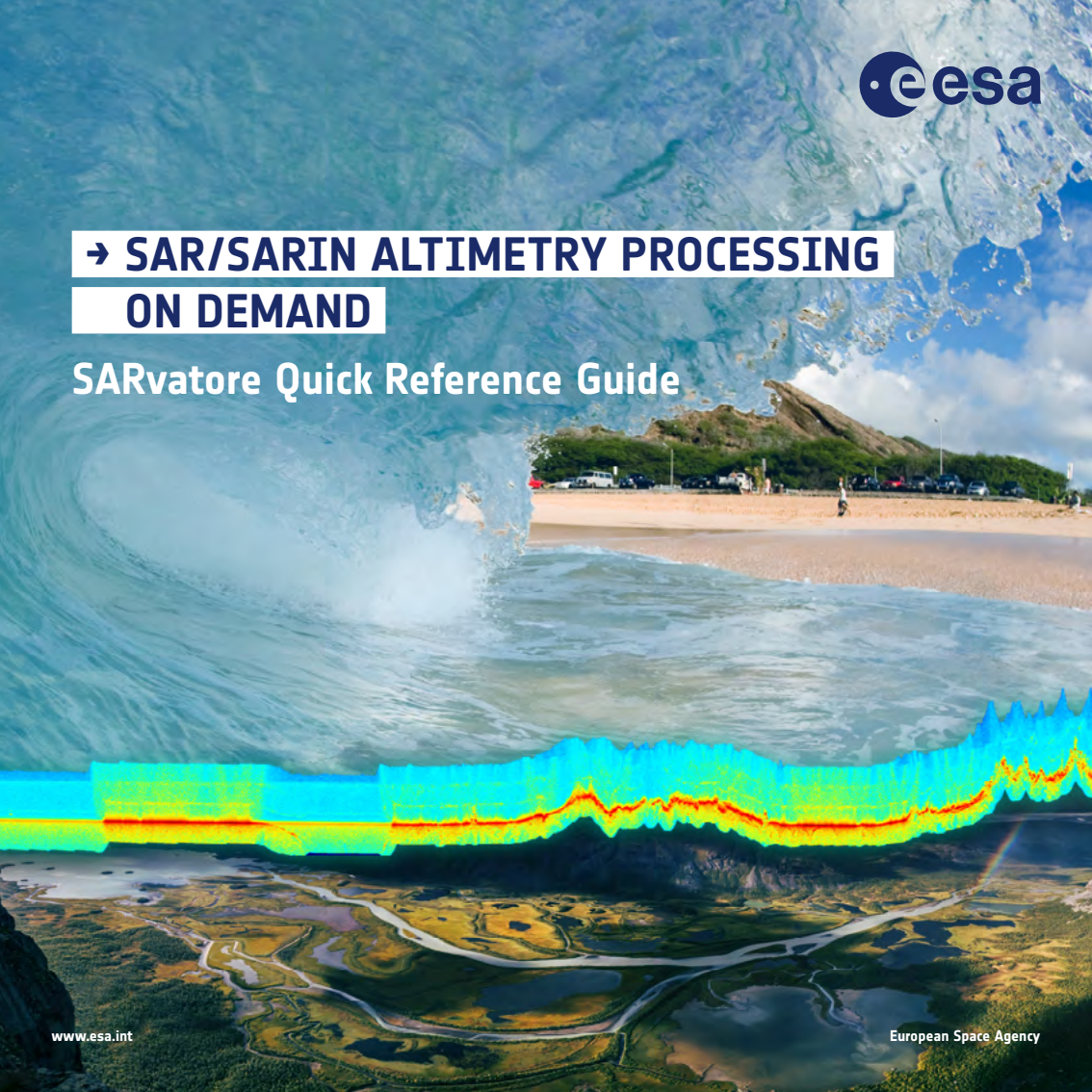
→ SAR/SARIN ALTIMETRY PROCESSING ON DEMAND

SARvatore Quick Reference Guide



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What is SARvatore?

SARvatore (SAR Versatile Altimetric Toolkits for Ocean Research & Exploitation) is a SAR and SARin altimeter data processing on demand service available on the ESA-RSS processing platform (G-POD).

This G-POD service allows users to process, on line and on demand, low-level CryoSat-2 and Sentinel-3 Altimetry data products (FBR, Level 1A) in SAR mode up to Level-2 geophysical products with self-customized options (not available in the default processing of CryoSat-2 and Sentinel-3 Ground Segments), exploiting all the capabilities of modern grid computing.

Steps

1 Create a user account with ESA Earth Observation services (ESA EO)

a. Go to **https://earth.esa.int/**

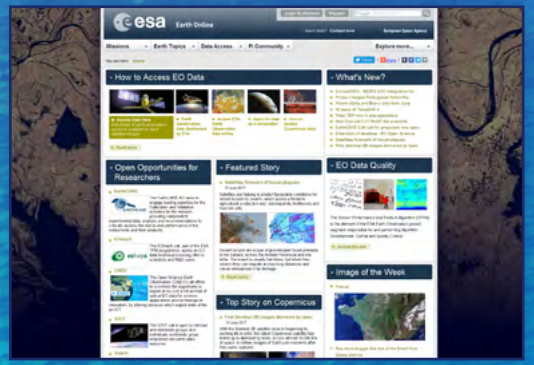

Figure 1
ESA Earth Online

b. Click on ***'Register'*** at the top of the page.
c. Fill out the ***ESA EO Single Sign On (EO SSO)*** registration form entering the requested details and click on ***'Register'***.

Figure 2
ESA SSO Registration Form

d. An automated email to activate the account will be sent.
By clicking on the link provided in the email the registration process will be complete.

2 Request access to the ESA Grid Processing On Demand (G-POD) platform by sending an email to *eo-gpod@esa.int.* Please indicate your EO SSO ID and the services you want to be granted access to:

a. SARvatore for CryoSat-2
b. SARINvatore for CryoSat-2
c. SARvatore for Sentinel-3

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Go to *https://gpod.eo.esa.int/* and click *'EO-SSO Login'* at the top of the page:

Figure 3
G-POD Login

4

Fill out the EO SSO login form, and click on 'Login'

Figure 4
ESA SSO Login

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Following a successful login, you will be redirected to *http://gpod.eo.esa.int/services/*

Figure 5
G-POD Services

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Click on 'Marine' services

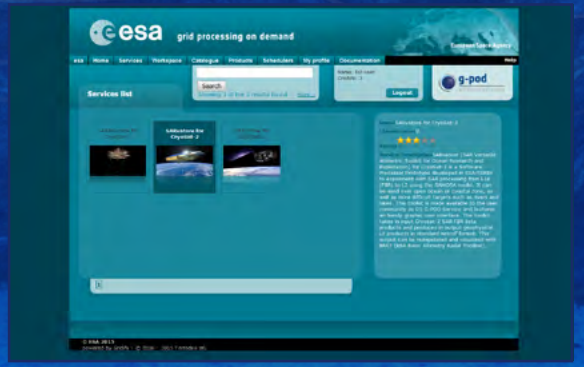

Figure 6
G-POD Marine services accessible from your account, includes CryoSat-2 SAR and SARin processing, and the new Sentinel-3 SAR processing. This last G-POD Marine service includes the processing for inland water and sea ice profiles, among others.

7 By choosing, for instance, 'SARvatore for CryoSat-2', the interface of the corresponding service will be accessed

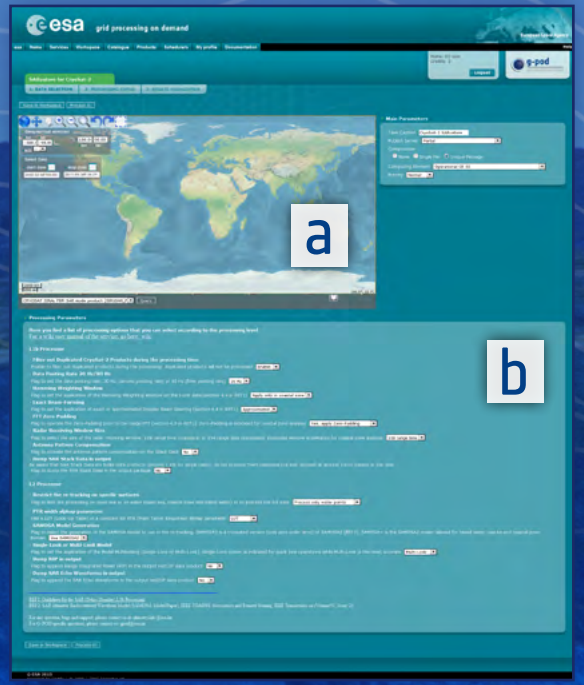

Figure 7
SARvatore for CryoSat-2

The graphical interface is divided in two parts:

a. The map area.
b. The processing parameters area.

8 On the map area, the user shall define the area of interest either by using the Select tool or by directly inserting the geographical coordinates.
The time interval includes by default the beginning of the mission and can be modified to satisfy the user's needs.

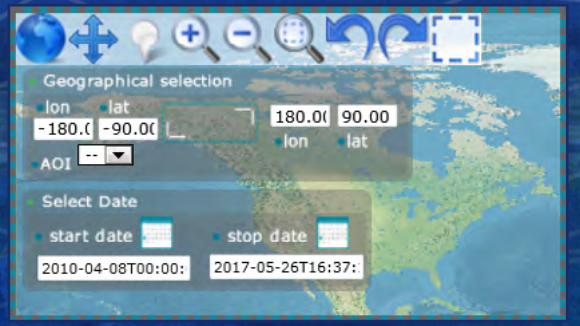

Figure 8
Map Tools

9 The *'Query'* button, located below the map, has to be pressed to search for products satisfying the selection criteria:

Figure 8
Product Query

The interface displays the tracks available within the selected area and time period. Tracks are displayed on the map and listed underneath it:

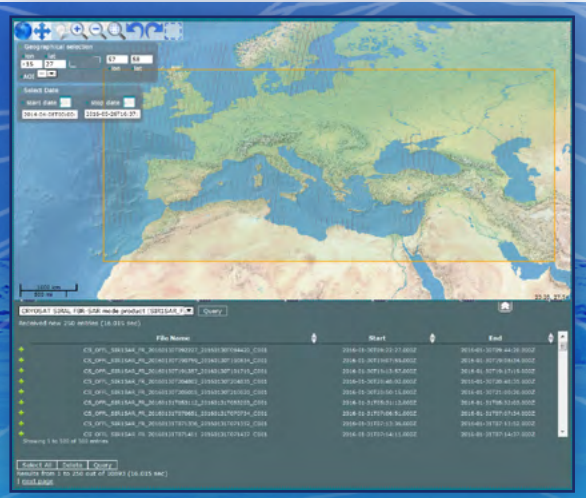

Figure 10
Product Query Result

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Individual tracks can be selected by clicking on the product name. The *'Select All'* button allows to select all tracks. The chosen tracks will be marked in dark red on the map.

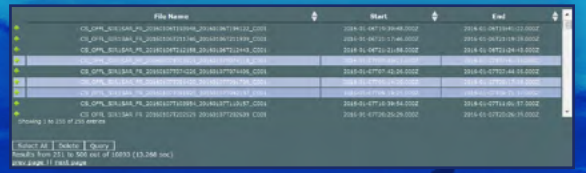

Figure 11
Select Tracks

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Configure the parameters

Figure 12
Processing Parameters

An in-line help is provided describing each processing option. More information can be found on the SARvatore's wiki **https://wiki.services.eoportal.org/tiki-index.php?page=-GPOD+CryoSat-2+SARvatore+Software+Prototype+User+Manual**. For further assistance, please write to **altimetry.info@esa.int**.

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Run the processor by clicking on *'Process it!'*. This will open the G-POD Workspace where the newly created request will be listed. Users can follow the progress on the status bar. The processing time depends on the amount of products to be processed.

Figure 13
G-POD Workspace

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Once the processing has been completed, click the caption name to access the Results Visualization page. Here users can review the processed tracks, the job information (e.g. run logs, input parameters, selected options), and most importantly, download the results.

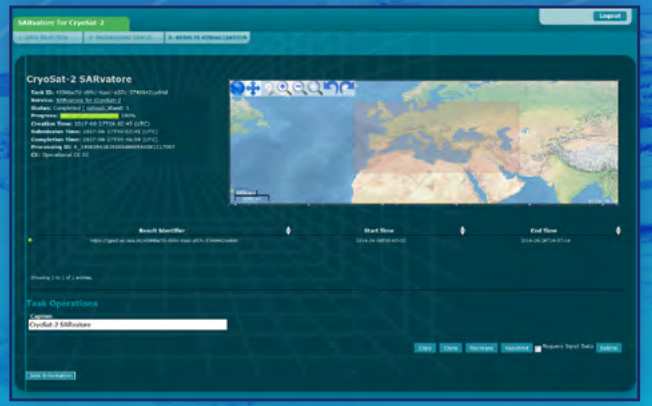

Figure 14
Processing Status

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Click on the "+" sign to expand the results list. A link pointing to a file named *'results.tgz'* will be shown. These are the processing results to be downloaded.

Figure 15
Results

15

Within the archive, the following products are included for each track:

The graphical interface is broadly divided in two parts:

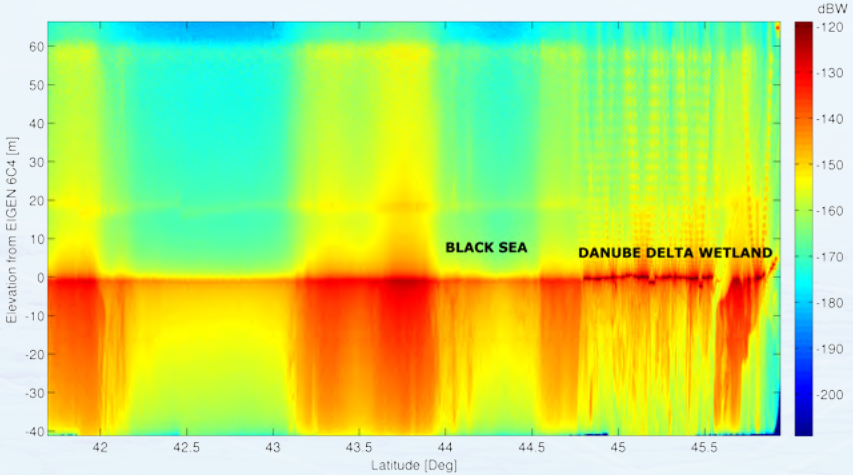
a. A KML file including the satellite pass ground-track to be opened in Google Earth.
b. An image with the radar data image (Radar Echogram).
c. A NetCDF Level-2 product (CF-convention). Data from EGM2008 and EIGEN6C4 geoids are also included.

SARvatore for CryoSat-2 and Sentinel-3 include similar processing options. Considering the variety of GPOD users, default profiles have been included in the SARvatore for Sentinel-3 service to suggest the most suitable processing options for the following scenarios:

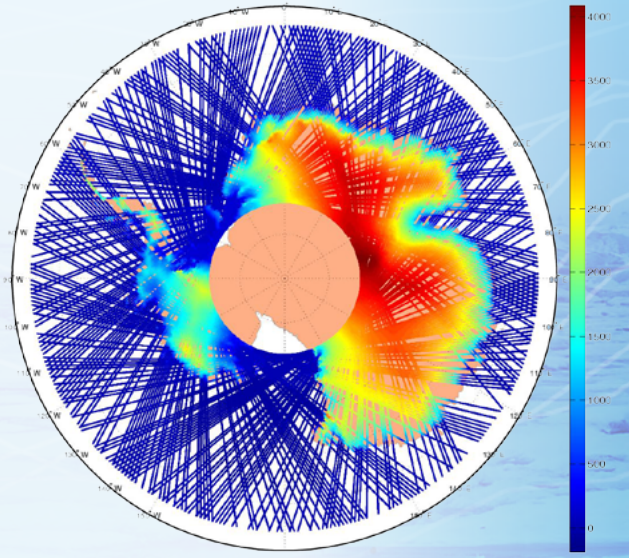
- Ice Sheets
- Sea Ice
- Open Ocean
- Coastal Zone
- Inland Water
- Inland Water High Posting Rate
- Official S3

A few illustrative plots created by using SARvatore

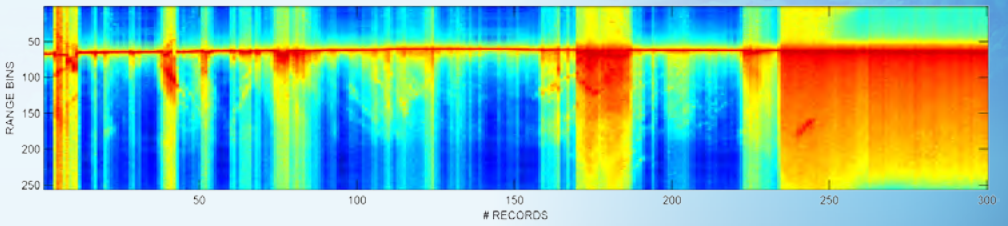
S3A SRAL Radar Echogram [colors are dBW] over Danube Delta, Cycle 15 Pass 64, 03 March 2017, GPOD DATA



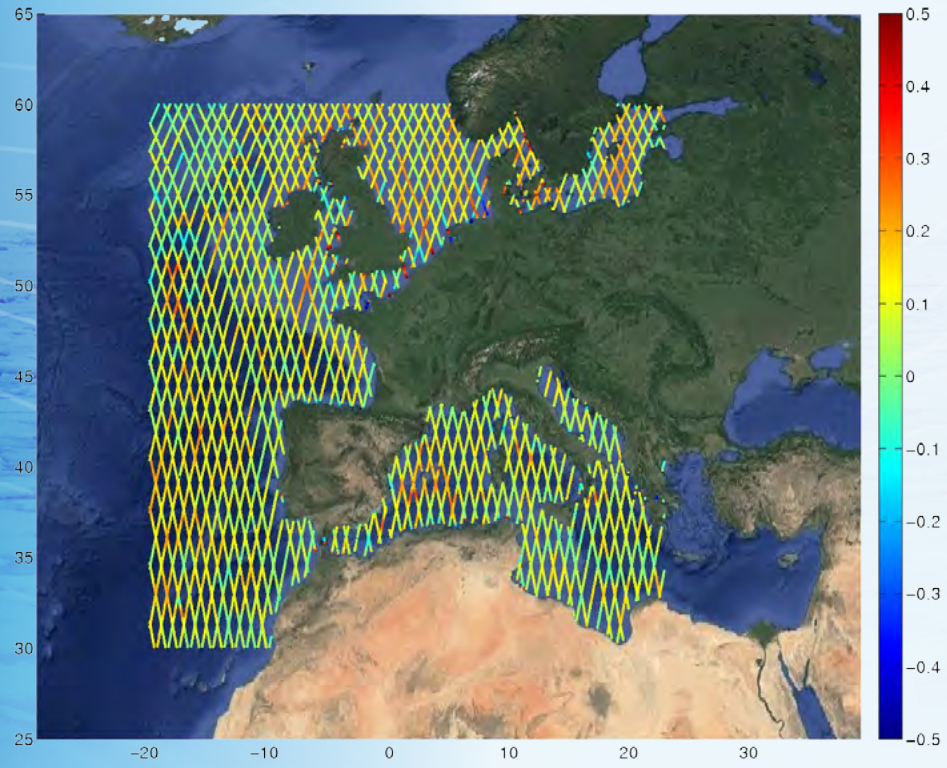
Sentinel-3A Surface Elevation [m], March 2017, L2 GPOD from L1A (SAM+ Solution)

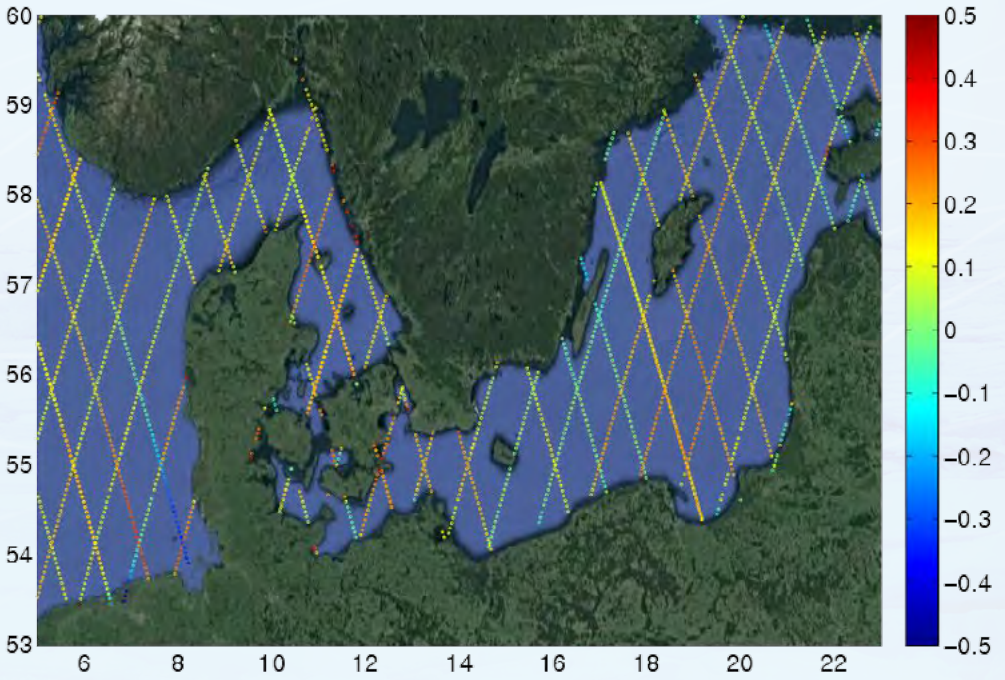


CryoSat-2 echo radargram over the Caspian Sea (dB)



GPOD S3A SAR Sea Level Anomaly Map [meters] CYCLE 08 (SAM+ Solution)





Contact Us

To become a user and for support on using SARvatore please contact Jérôme Benveniste at SARvatore's team email **altimetry.info@esa.int.**

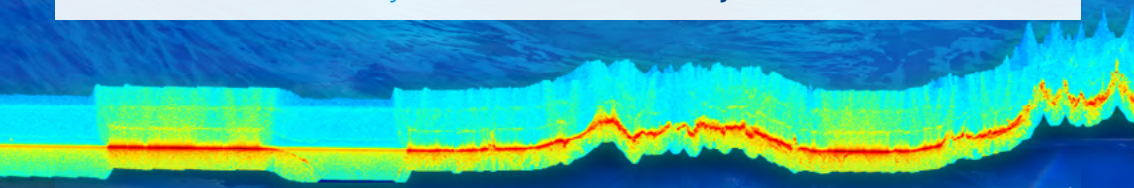
The GPOD User Manual can be found at
http://wiki.services.eoportal.org/tiki-index.php?page=GPOD+User+Manual.

In case of issues in accessing or running the GPOD services, as well as for off-line processing requests of significant amount of data, please write to the RSS team at **eo-gpod@esa.int.**

Acknowledging

Please acknowledge the *"CryoSat-2/Sentinel-3 service for SAR/SARin Processing on Demand (SARvatore) on the ESA-RSS processing platform"*, when you show or publish results obtained by using SARvatore.

Please also share and discuss your results with us at **altimetry.info@esa.int**.



We wish you a good processing time in G-POD!