

→ MEASUREMENTS AND OBSERVATIONS  
IN THE 21<sup>st</sup> CENTURY CONFERENCE

# SAR ALTIMETRY PROCESSING ON DEMAND SERVICE FOR CRYOSAT-2 AND SENTINEL-3 AT ESA G-POD

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## The G-POD CryoSat SAR/SARin Processing service

- The G-POD CryoSat SAR/SARin Processing service is a web platform that **provides the capability to process on-line and on-demand CryoSat SAR and SARin data**, from L1a (FBR) data products until SAR/SARin Level-2 geophysical data products.
- The service exploits the computational power provided by the ESA **Grid Processing on Demand (GPOD)** system. One of the goals of G-POD is to provide users with a fast computing facility without the need to handle bulky data offering:
  - Over **350 CPUs** in 70 Working Nodes
  - Over **330 TB** of local online Storage
  - Internal dedicated **1 Gbit** LAN



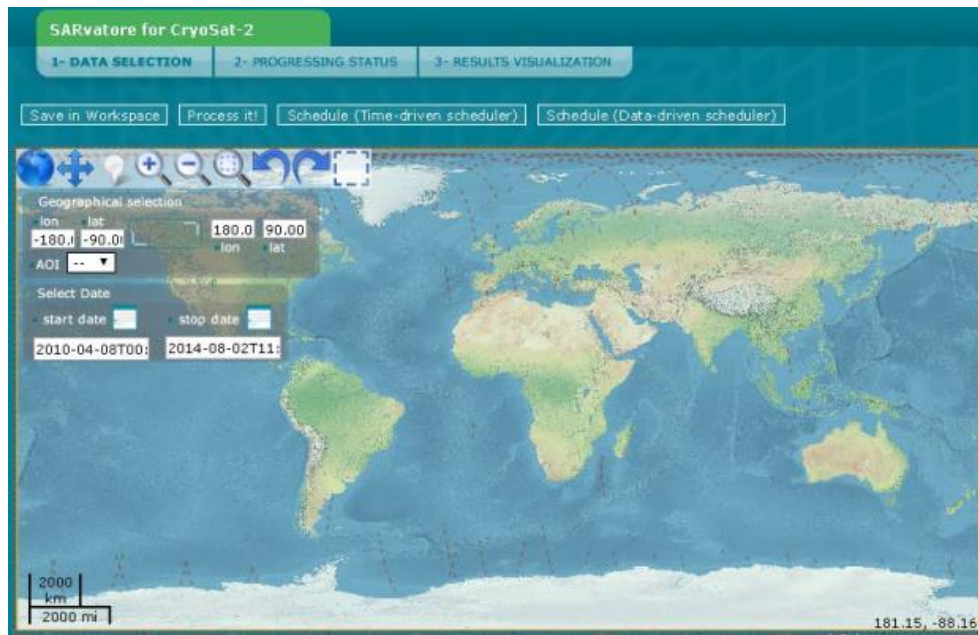
[https://gpod.eo.esa.int/services/CRYOSAT\\_SAR](https://gpod.eo.esa.int/services/CRYOSAT_SAR)

[https://gpod.eo.esa.int/services/CRYOSAT\\_SARIN](https://gpod.eo.esa.int/services/CRYOSAT_SARIN)



## The G-POD CryoSat SAR/SARin Processing service

- The user can select through a GUI the **zone of interest** and the **time of interest** for the required run.
- The service, coined **SARvatore** (**SAR** Versatile **Altimetric** Toolkit for **Ocean** **R**esearch & **E**xploitation), can process CryoSat-2 data over any surface but it has been so far optimised for ocean studies.



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- The service processor prototype is **versatile** allowing users to customize and adapt the processing, according to their specific requirements, setting a list of configurable options.
- The configurable options are divided according to the processing level they refer to (L1b and L2). Due to this versatility, users can process already now, CryoSat-2 FBR (L1a) data **following the Sentinel-3 processing baseline**.

**Processing Parameters**

Here you find a list of processing options that you can select according to the processing level  
[For a wiki user manual of the service, go here: wiki](#)

**L1b Processor**

- **Hamming Weighting Window**  
 Flag to set the application of the Hamming Weighting Window on the burst data (section 4.4 in REF1)
- **Exact Beam-Forming**  
 Flag to set the application of exact or approximated Doppler Beam Steering (section 4.4 in REF1)
- **FFT Zero-Padding**  
 Flag to operate the Zero-Padding prior to the range FFT (section 4.8 in REF1). Zero-Padding is indicated for coastal zone analysis
- **Radar Receiving Window Size**  
 Flag to select the size of the radar receiving window: 128 range bins (standard) or 256 range bins (extended). Extended window is indicated for coastal zone analysis

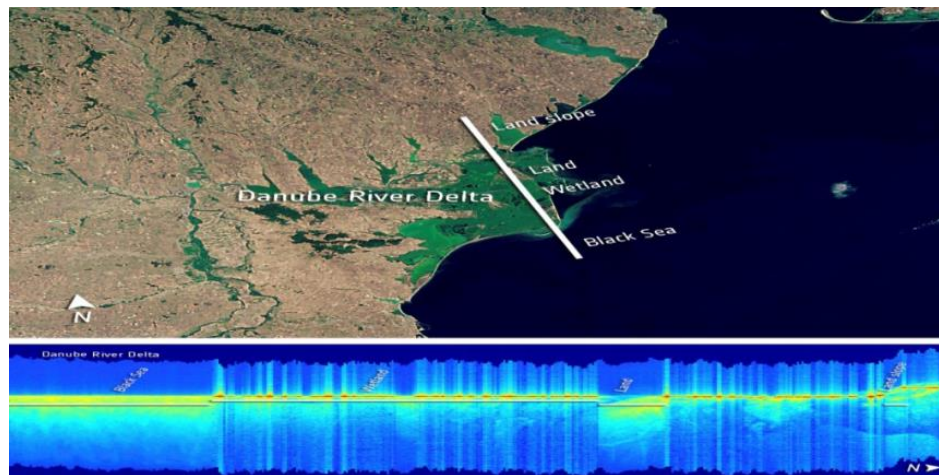
**L2 Processor**

- **Restrict the re-tracking on specific surfaces**  
 Flag to limit the processing on open sea or on water (open sea, coastal zone and inland water) or to process the full pass
- **Slope effect**  
 Flag to switch on the slope term in the SAMOSA model (REF2)
- **PTR width alpha parameter**  
 Use a LUT (Look-Up Table) or a constant for PTR (Point Target Response) alpha parameter
- **SAMOSA Model Generation**  
 Flag to select the generation of the SAMOSA model to use in the re-tracking. SAMOSA3 is a truncated version (only zero order term) of SAMOSA2 (REF2)



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- At the end of the run, the output can be downloaded from the service's portal by way of a simple click or uploaded directly to the user's personal ftp as a tar.gz package. The output package **consists of**
  - - A pass Ground-Track in KML format.
  - - A Radar Echogram Picture in PNG format.
  - - An L2 data product in NetCDF format.
- The output NetCDF file can be ingested in **BRAT (Broadview Radar Altimetry Toolbox)** to browse, visualize, edit and export the output content.



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[https://gpod.eo.esa.int/services/CRYOSAT\\_SARIN](https://gpod.eo.esa.int/services/CRYOSAT_SARIN)

[earth.esa.int/brat](http://earth.esa.int/brat)

[Altimetry.info@esa.int](mailto:Altimetry.info@esa.int)