

# BRAT

## Basic Radar Altimetry Toolbox

### What is BRAT?

The Basic Radar Altimetry Toolbox (BRAT) is a collection of tools and tutorial documents designed to facilitate the processing of radar altimetry data.

BRAT is able to handle most distributed radar altimetry data formats, providing support for ingesting, processing (computation of formulas involving combinations of data fields; resampling of data; data selection using one/several criteria), generating statistics, visualising and exporting the results.

It is possible to interact with the data via several interfaces, such as Graphical User Interface or via external interfaces like IDL, MATLAB, C/ Fortran libraries.

The source code of the project is distributed under the open-source licence GNU GPL. Pre-compiled binaries, are also available for Windows, Linux and MacOS X. For more details on the supported versions please see the Installation Manual/User Guide.

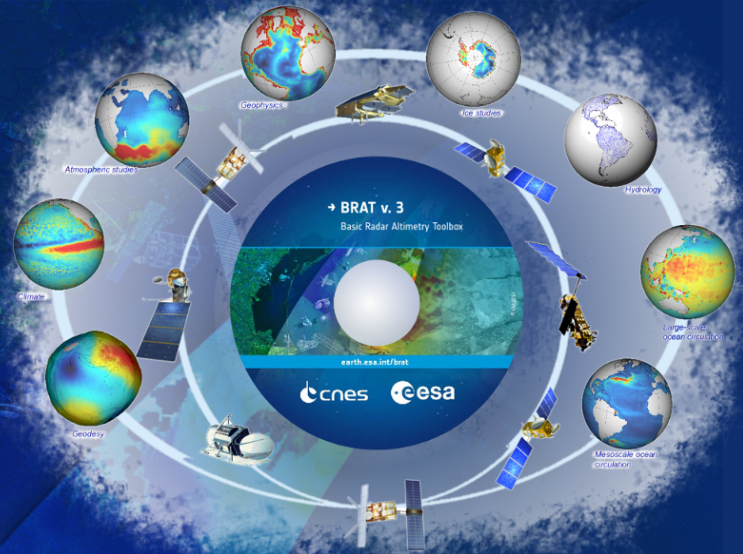
### What data does BRAT handle?

BRAT can read radar altimeter data from the following missions/sensors: **Cryosat** (L1B & L2), **Envisat** (GDR, WWW, FGD, IGD, MWS), **ERS 1** and **ERS 2** (RA OPR, RA WAP), **Topex/Poseidon** (IGDR, GDR, Waveforms), **Jason 1** (IGDR, GDR, OSDR, SGDR), **Jason 2** (O/I, GDR, SIGDR), **GFO** (GDR).

Because the internal file format of BRAT is netCDF it can read generic netCDF (COARDS/CF compliant), such as the one produced by the **GUT - GOCE User Toolbox** (earth.esa.int/gut) and of course the relevant **AVISO data** (www.aviso.oceanobs.com), both along track as gridded (SLA, ADT, SSH, SSHA, SWH among others). **River & Lake** products (earth.esa.int/riverandlake) are also supported.

BRAT can also save selected/processed data files in the **netCDF** format, besides exporting it into **ASCII** (text based). The visualizations can be exported in raster images (**PNG, JPEG, BMP, TIFF, PNM**) and also **KML** (Google Earth with GeoTIFF) for map plots.

<http://earth.esa.int/brat>

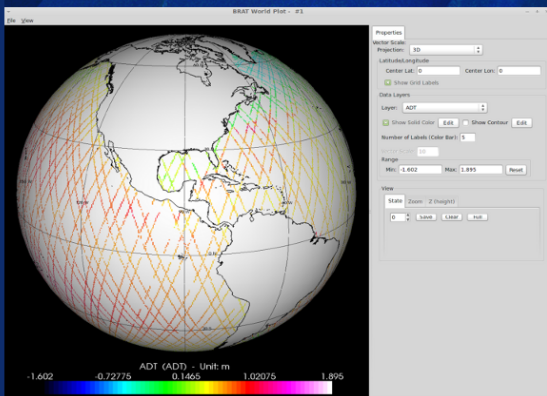


### Radar Altimetry Tutorial

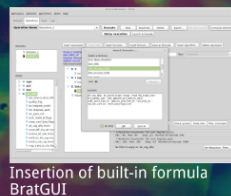
The documentation is aimed at newcomers in altimetry introducing the subject and its applicability to the different fields of study.

The Tutorial is divided into several chapters, that contain background information about altimetry techniques, the main applications of radar altimetry and "Data Use Cases" providing some practical examples of the applications of altimetry data for different fields of study, using the BRAT Software.

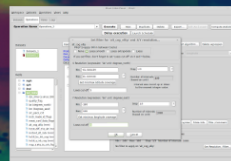
Detailed information about Missions and Satellites is also available.



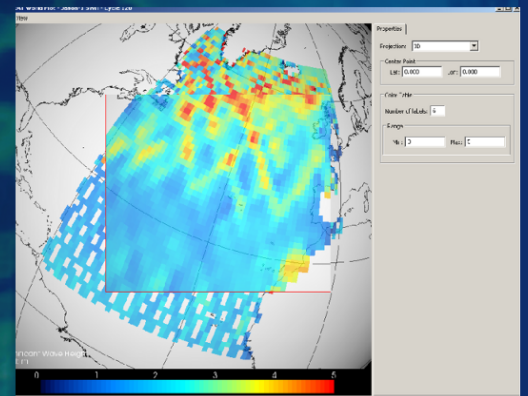
Along-Track plots (Envisat cycle 25 - Normalized BTs) - BratDisplay Export



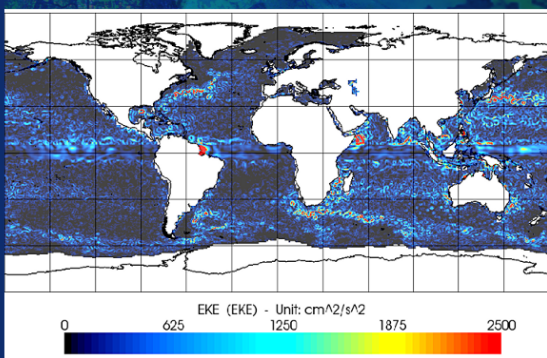
Insertion of built-in formula BratGUI



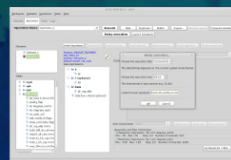
Resampling options - BratGui



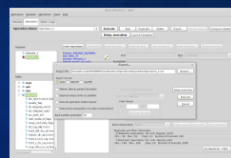
Screenshot with data Resample superimposed - BratDisplay



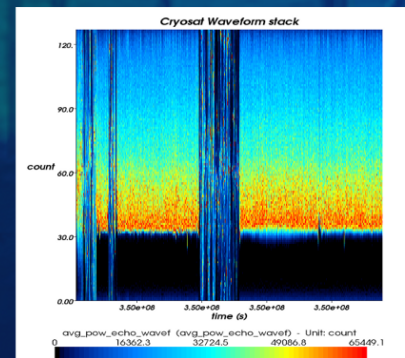
Kinetic Energy - BratDisplay export



Delayed/Scheduled execution BratGui



Exporting data (options) BratGui



Stacked Cryosat Waveform - Export BratDisplay