



Basic Radar Altimetry Toolbox: tools and tutorial to use radar altimetry for hydrology

Vinca Rosmorduc (1), Jerome Benveniste (2), Emilie Bronner (3), and Sander Niemeijer (4)

(1) CLS, Aviso, Ramonville StAgne, France (vinca.rosmorduc@cls.fr), (2) ESA/ESRIN, Frascati, Italy, (3) CNES, Toulouse, France, (4) Science & Technology, Delft, Netherlands

Radar altimetry is very much a technique expanding its applications and uses. If quite a lot of efforts have been made for oceanography users (including easy-to-use data), the use of those data for hydrology is still somehow hard. ESA and CNES thus had the Basic Radar Altimetry Toolbox developed a few years ago, and are improving and upgrading it to fit new missions and the growing number of altimetry uses.

The Basic Radar Altimetry Toolbox is an "all-altimeter" collection of tools, tutorials and documents designed to facilitate the use of radar altimetry data. The software is able:

- to read most distributed radar altimetry data, from ERS-1 & 2, Topex/Poseidon, Geosat Follow-on, Jason-1, Envisat, Jason-2, CryoSat and the future Saral missions,
- to perform some processing, data editing and statistic, and
- to visualize the results.

It can be used at several levels/several ways:

- as a data reading tool, with APIs for C, Fortran, Matlab and IDL
- as processing/extraction routines, through the on-line command mode
- as an educational and a quick-look tool, with the graphical user interface

As part of the Toolbox, a Radar Altimetry Tutorial gives general information about altimetry, the technique involved and its applications, as well as an overview of past, present and future missions, including information on how to access data and additional software and documentation. It also presents a series of data use cases, covering all uses of altimetry over ocean, cryosphere and land, showing the basic methods for some of the most frequent manners of using altimetry data.

It is an opportunity to teach remote sensing with practical training.

It has been available from April 2007, and had been demonstrated during training courses and scientific meetings. About 1500 people downloaded it (end of 2010), with many "newcomers" to altimetry among them. Users' feedbacks, developments in altimetry, and practice, showed that new interesting features could be added. Some have been added and/or improved in version 2 and 3. Others are under development, some are in discussion for the future.

Examples and Data use cases on Continental Hydrology will be presented.

BRAT is developed under contract with ESA and CNES.

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

<http://www.altimetry.info>