

I BASIC RADAR ALTIMETRY TOOLBOX AND RADAR ALTIMETRY TUTORIAL: TOOLS FOR ALL ALTIMETRY USERS

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The Basic Radar Altimetry Toolbox is an “all-altimeter” collection of tools, tutorials and documents designed to facilitate the use of radar altimetry data. Such an integrated approach and view is vital not only for assessing the current status of what altimeter products offers, but also to show the system and consistency with the past.

It has been available (<http://www.altimetry.info>) from April 2007, and had been demonstrated since about six months before that, including during training courses and scientific meetings. More than 800 people downloaded it. Users’ feedbacks, developments in altimetry, and practice, show that some new interesting features could be added.

It is able:

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

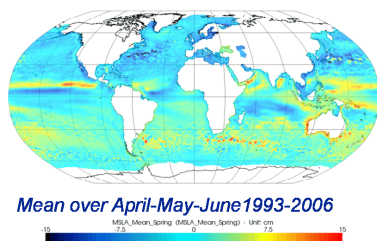
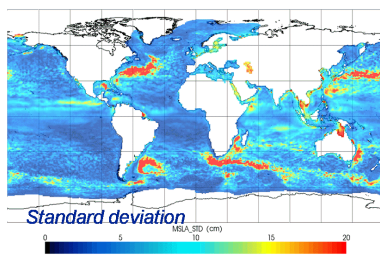
It can be used at several levels/several ways:

- 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

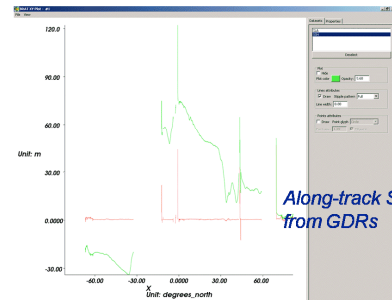
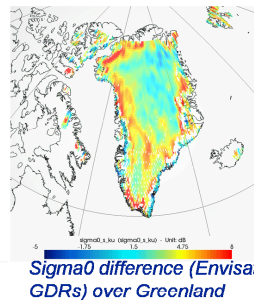
Version 2 has been released in April 2009, with major improvements. This update is a major upgrade of the software, including a Mac OS X version, River&Lake data reading capability, new plotting capabilities, export in GeoTiff, including a Google Earth export feature, easier export in Ascii, a rethinking of the Graphical user interface and of the software packaging, to make it easier to use. Among other things, the easiness-of-use of the graphical user interface has been improved.

This was done following users’ remarks, and observations made during practical sessions. The result is a more intuitive, less crowded interface. Another major new feature is the possibility of reading, making computations on, and plotting, altimetric waveform data.

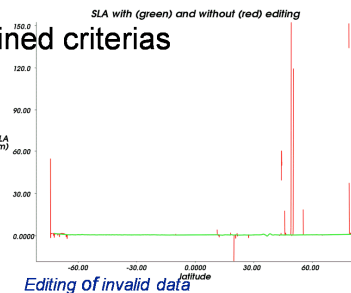
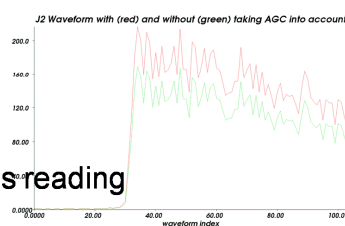
Statistical functions



Parameters combinations



Selection upon user-defined criterias



Waveforms reading

Figure 1. Example BRAT features concerning reading and computing altimetry data.

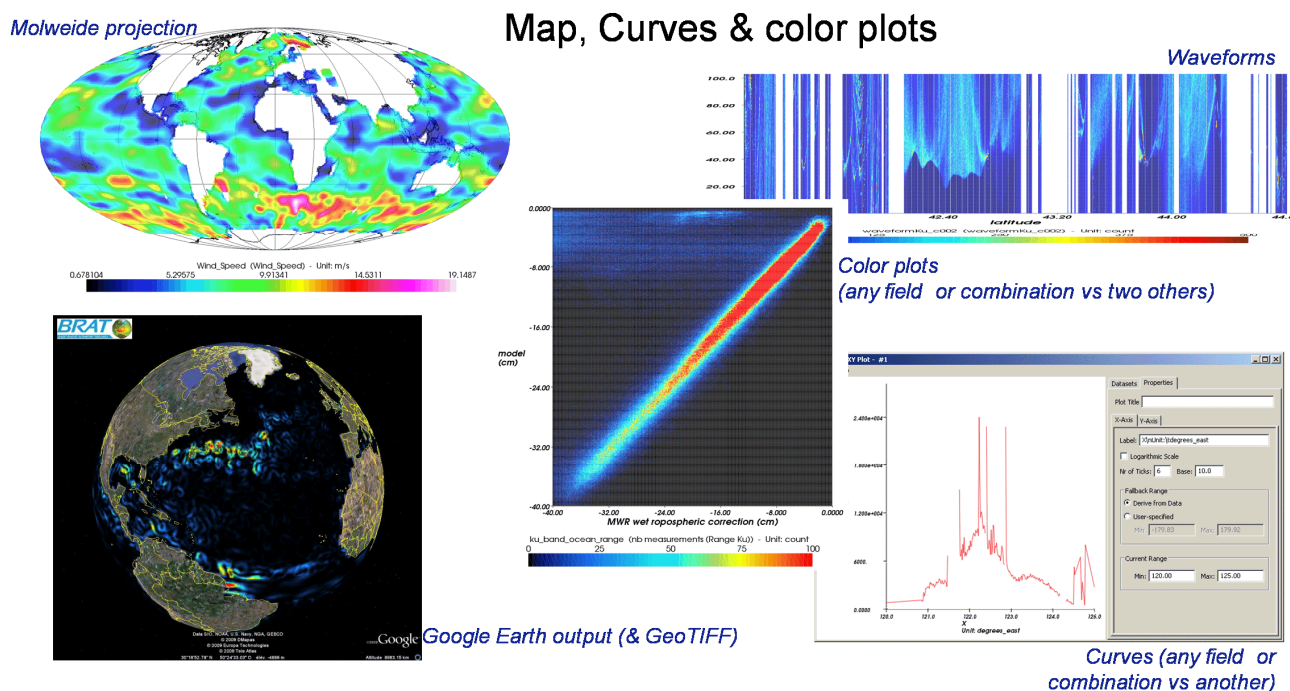


Figure 2. BRAT display modes (examples of maps, color plots and line plots; also a Google Earth output; other possibilities exists)

Several additional improvements are envisioned, in particular following users' suggestions and remarks. Expressions of those needs are strongly encouraged.

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.

BRAT is developed under contract with ESA and CNES. It is available at <http://www.altimetry.info> and at <http://earth.esa.int/brat/>

REFERENCES

- [1] Rosmorduc, V., N. Picot, Twelve years of user services for ocean topography users: Aviso experience and lessons learned, *PV-2004 "Ensuring the Long-Term Preservation and Adding Value to the Scientific and Technical Data"*, Frascati, 2004
- [2] Rosmorduc, V., Aviso, at the crossroad between user service, outreach and education, *Advances in Geosciences*, 4, 1-4, 2005
- [3] <http://earth.esa.int/brat>
<http://www.altimetry.info>