

Basic Radar Altimetry Toolbox: Tools to use altimetry for hydrology

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A joint ESA-CNES project, to make easier the use of altimetry

The Basic Radar Altimetry Toolbox is an "all-altimeter" collection of tools, tutorials and documents designed to facilitate the use of radar altimetry data, including the next missions to be launched, for all applications.

The Basic Radar Altimetry Toolbox 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, for several processing levels
- to perform some processing, data editing and statistics,
- and to visualize the results.

It can be used several ways and at several levels:

- as a data reading tool, with APIs for C, Fortran, Matlab and IDL
- as processing/extraction routines, through the on-line command mode
- as quick-look tool, with the graphical user interface
- and as an educational tool, also 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 missions, 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 <http://earth.esa.int/brat/>

All satellites since ERS-1

All levels of data from L1b

Parameters extractions / combinations

Waveforms reading & plotting

Various possible graphic outputs

Selection upon user-defined criterias

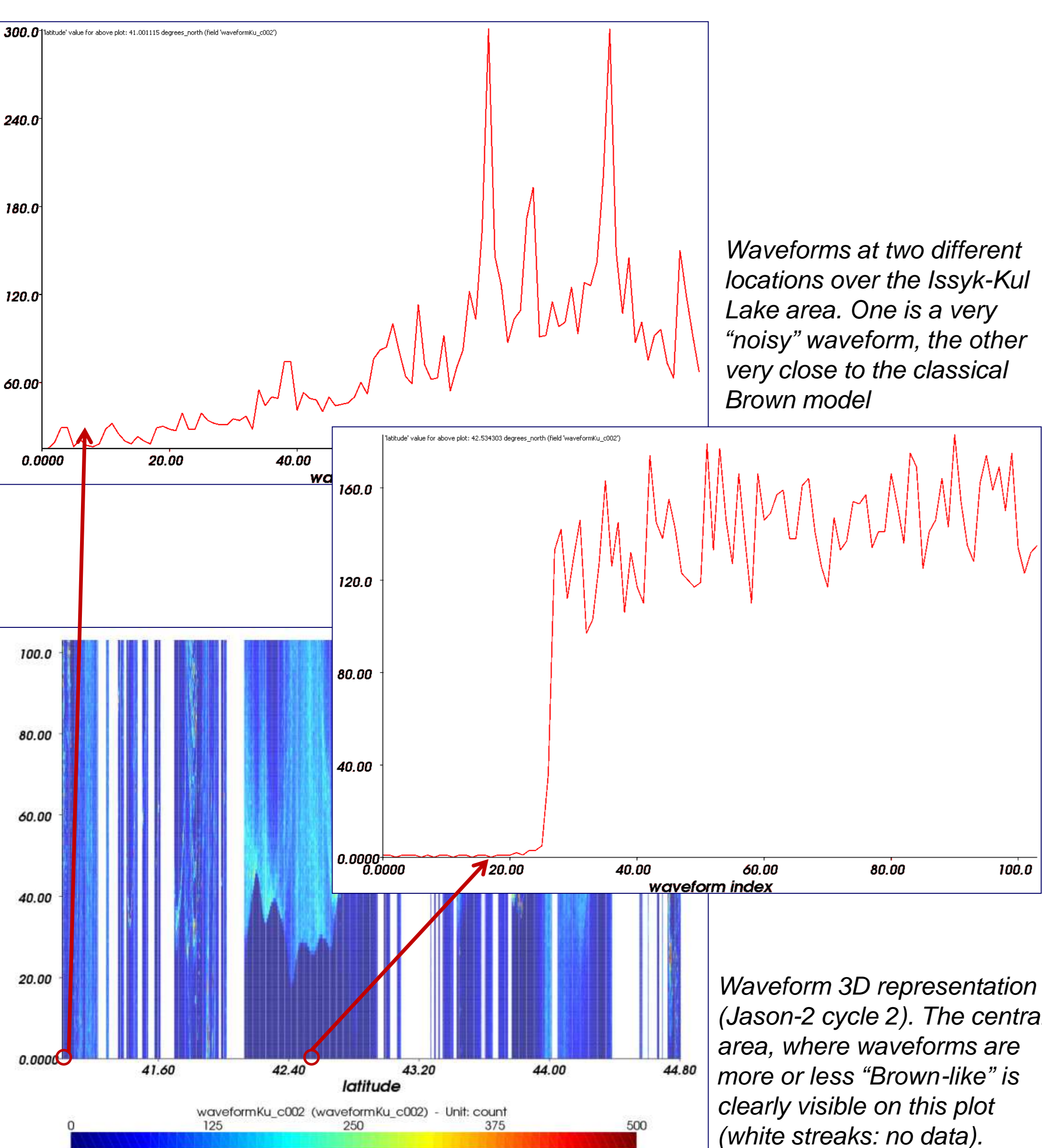
Statistical functions

Data Use Cases: hydrology applications

Hydrology is one of the rising applications of altimetry. However, it is still mostly at the research level, with GDR or GDR-like data available. It also needs a very "local" processing / editing most of the time, with the corrections, thresholds and edited data choice mostly empirical.

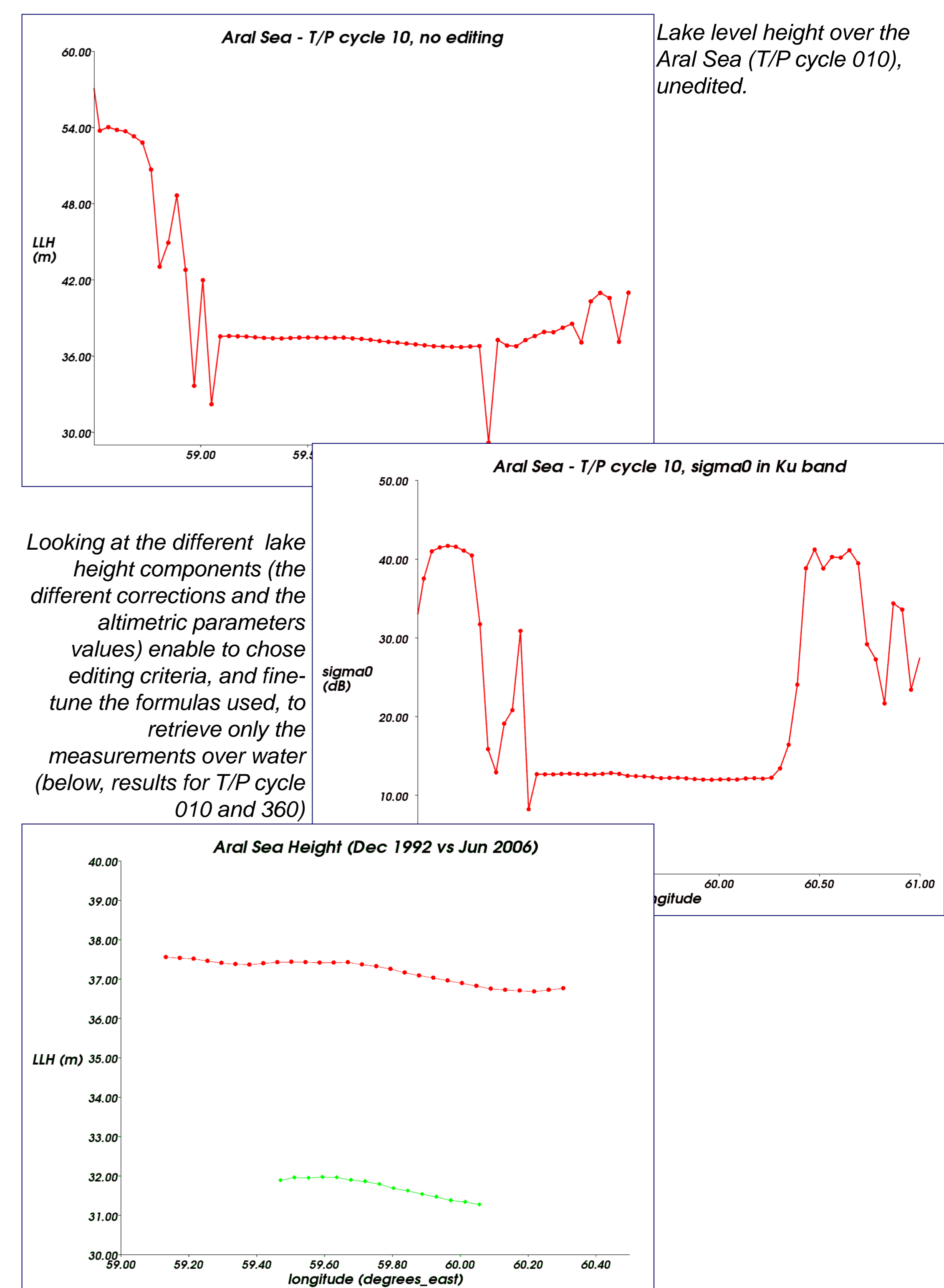
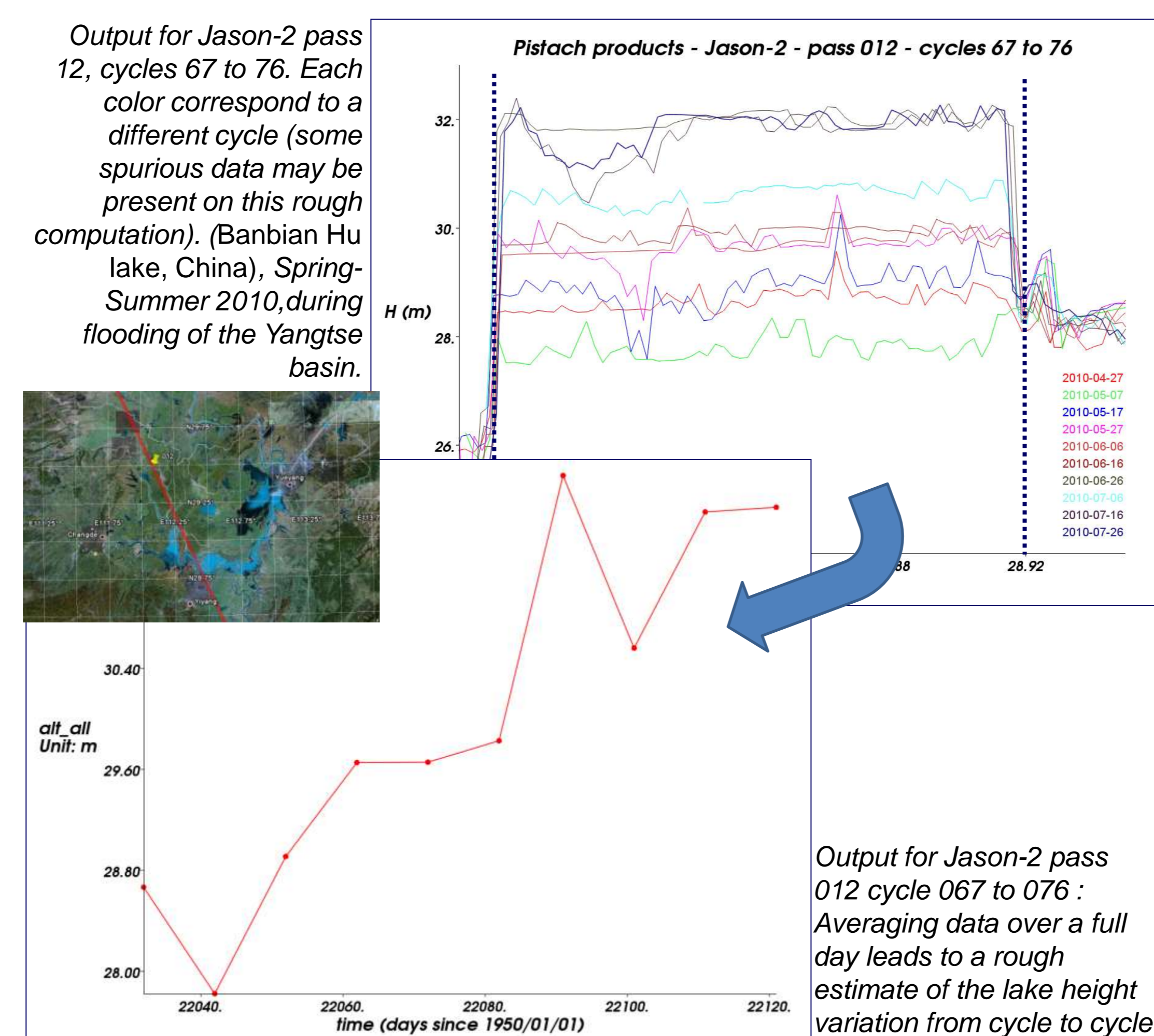
The Basic Radar Altimetry Toolbox can help several ways by:

- reading high-level data (ESA River & Lake)
- reading the GDR & also PISTACH data and:
 - . extract from them the relevant variables
 - . compute river/lake surface height
 - . do systematic user-defined editing
 - . plot the results,
 - . export the results in Ascii or NetCDF
- reading and plotting waveform data



BRAT 'Operations' tab with a river height expression included.

A click on 'Selection criteria' shows the restriction on latitude and waveform classification applied



Detailed examples on the web site ("Data Use Cases") <http://www.altimetry.info>