

Day 2 – Co-ReSyF Summer School – 13/07/2017

2.1 Coastal Altimetry – Nadim Dayoub

The coastal managers need information about the change of the sea level because it has a big impact on the coastal areas.

We know that the sea level is rising from what we see in the data.

Tide gauges have problems because they are not globally distributed. They are good only for local sea level rise rate, but not for global monitoring.

Nowadays the orbit model for the position of the satellite has an accuracy of the order of cms. At the start of the altimetry missions it was of the order of meters.

For the ocean the dynamic height is almost equal to the orthographic height, differences of only about 2 meters.

There is a need to apply a lot of corrections because the transmitted pulse does not travel only through the vacuum, it crosses the ionosphere, troposphere and the lower atmosphere before hitting the Earth's surface.

In altimeters two frequencies are used in order to remove the ionospheric effects.

The dry troposphere has the biggest contribution from the troposphere and it is well modelled by using the atmospheric pressure. But in coastal altimetry there is a problem because it is needed to use the ocean pressure and not the pressure over the land.

The most difficult correction is the wet troposphere correction. Microwave radiometers are used to observe the wet contents of the troposphere. But in coastal areas the contribution to the radiometer is seen by the instrument before it affects the altimeter (because of the differences in resolution) and this causes problems.

When getting near coast the problem is that the return echo from the land surface starts to contaminate the footprint of the echo from the ocean.

The ALES retracker solves the problem of land contamination by focusing the analysis on the first edge of the reflected pulse, which allows to reduce the footprint to 1 to 2 kms off the coast.

The several corrections for the coastal altimetry application are for the more experienced user, but for novice users default values can be used and will be sufficient for the correct processing.

When using the altimetry data people use reference tracks to interpolate the data from the different tracks into a reference grid that can be used to generate consistent time series.

2.2 Using Whiteboard to guide you in choosing an RA– Steve Emsley

The whiteboard is currently a concept that is being discussed between the partners and the presentation is given to gather the feedback from the participants.

The knowledge base is a central place to store knowledge, although some information may be links to other sources of knowledge, it will be a central place to reference all the information needed by a user without the EO expertise.

The knowledge base will have a keyword base search with tags that the user would ask a question and would get results to links in the knowledge base (Google type search).

If a question in the User forum appears frequently it is taken to the FAQ pages of the knowledge base.

The expert centre will be based on the open source Wings software.

The semantic workflows have rules that check if the processing flow is correct and can suggest input configuration parameters.

The Whiteboard concept is more focused on a place to post ideas for projects or subjects of research, and promote collaborations between different researchers.

The Whiteboard concept is based on a Kanban board.

It is important that for the Whiteboard everyone has visibility on all the work that is proposed, is being done and has been completed.

2.3 & 2.5 Data access and adding your own data to the platform & Develop your own processing chains– Hervé Caumont

Tools like Conda and yuminstall are available in the sandbox for users to be able to install easily different software modules and packages.

The validated applications can be deployed on other user's sandboxes or can be deployed in production servers to be available as applications that can be run from the geoportal.

The running software is installed as an executable that can be called via command line.

There are several partners like Amazon, EGI and Polish data centres, that provide the cloud ICT resources for the processing of the data.