

Please note all these products are not distributed anymore

Ice Products

The CTOH develops specific methods and processing applied to the continental surfaces in particular for the cryosphere.

ICE-2 retracker

Altimetric data collected over continents are usually processed and optimized for ocean surfaces which restrained their use for continental applications. With the introduction of radar altimetry applications over the ice sheets, a new retracking procedure was developed, the so called ICE-2 retracker. It has been designed to process altimeter waveforms obtained over most of the non-ocean surfaces. This technique was first applied with success to the ERS altimeter data (Legresy & Remy, 1997; Remy et al., 1999; Vinay et al., 2002). This processing has been now included directly in the ENVISAT radar altimeter ground segment, which enables retracked data to be delivered to the users for continental surface applications.

Quality Assessment

Ice validation for Antarctic and Greenland continents. We investigate the stability and reliability of different corrections for the altimetric measurements. Currently, a validation chain is already developed specifically to the cryosphere (ICE validation). The products of that validation are available cycle by cycle.

Geographical and echo corrections

A method has been developed at LEGOS to survey along track. This method has the advantage to avoid the ascending/descending difference in echoing and also to lead to around 100 times more measurements available to survey the evolution. It also helps to look at the time evolution of the ice sheet surface at small scales of the order of few km in regional or local studies. Using this method, both the error due to bad repeatability (geographical) and the error due to change in snow pack properties (echo) are calculated and apply to the height measurement.

Publication :

- Legresy, B, F Papa, F Remy, G Vinay, M Van Den Bosch, et O Z Zanife. « Envisat radar altimeter measurements over continental surfaces and ice caps using the ice-2 retracking algorithm ». *Remote Sensing of Environment* 95, n° 2 (2005): 150-63.

Ice Validation chain for radar altimetry

The OSCAR project intend to maintain and develop the use of satellite radar altimetry over continental surfaces. Here we show the processing chain that has been developed at LEGOS and which we use to qualify the ENVISAT and ERS data. The validation is based on a crossover analysis. We will show the steps of the validation process, the results on various parameters, like height, but also backscatter, leading edge and trailing edge of the waveforms. The validation process allows us to deliver reports, but also a validation table which is available on our website as well as other meta product. The validation table gives for each track of each cycle a validity flag and a qualifying flag giving the reason of rejection if necessary. The waveform parameters as well as the geophysical and instrumental corrections are checked during the validation process. Over ice

caps further echo and geographic corrections are computed which allows surveying the altimetric accuracy with time, area, surface slope.

Publications :

- Proceeding of the ESA Living Planet Symposium, 28 June – 2 July 2010, Bergen, Norway
- Poster of the ESA Living Planet Symposium, 28 June – 2 July 2010, Bergen, Norway