

## A New CCI ECV Release (v2.0) to accurately Measure the Sea Level Change (1993-2015)

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An accurate monitoring of the sea level is required to better understand its variability and changes that are linked to climate change. Sea level is one of the Essential Climate Variables (ECV) selected in the frame of the ESA Climate Change Initiative (CCI) program. It aims at providing a long-term homogeneous and accurate sea level record with regular updates, as required for climate studies. During the first phase of the program (2011-2013), the needs and feedbacks of the climate research community have been collected regarding the sea level estimation. A first version of the sea level ECV product has been generated with the best algorithms and altimeter standards. This record now covers the period 1993-2014 and has been validated by the climate research community.

Within phase II (2014-2016), the 15-partner consortium has prepared the production of a new reprocessed homogeneous and accurate altimeter sea level record which will be distributed in autumn 2016. New level 2 altimeter standards developed and tested within the project as well as external contributions have been identified, processed and evaluated by comparison with a reference for different altimeter missions (TOPEX/Poseidon, Jason-1 & 2, ERS-1 & 2, Envisat and GFO). All standards have been evaluated for each mission with respect to their equivalent in the current SL\_cci product (v1.1) or to other equivalent contributions. The main evolutions are associated to the wet troposphere correction (based on the GPD+ algorithm including inter calibration with respect to external sensors) but also to the orbit solutions (POE-E and GFZ15), the ERA-Interim based atmospheric corrections and the FES2014 ocean tide model. A new pole tide solution is used and anomalies are referenced to the MSS DTU15.

The presentation will focus on the main achievements of the ESA CCI Sea Level project and on the description of the new SL\_cci ECV release covering 1993-2015. The major steps required to produce the reprocessed 23 year climate time series will be described. The impacts of the selected level 2 altimeter standards on the SL\_cci ECV have been assessed at different spatial scales (global, regional, mesoscale) and temporal scales (long-term, inter-annual, periodic...). A significant improvement is expected by comparison to the current v1.1, with the main impacts on the long-term evolution at decadal time scale, at global and regional scales, and for mesoscale signals. Results from product validation, performed by several groups of the ocean and climate modeling community will be also presented.

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