



ESA Sea level CCI

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List of Contents

- 1. Statement of overall progress of project ..... 1
- 2. Data Gathering and Quality for Phase 2..... 1
- 3. Evolution in product specification ..... 1
- 4. Round Robin (Algorithms evolution) ..... 1
- 5. Future Activities ..... 1
- 6. User impact with Phase 1 products and feedback ..... 1
- 7. Project outreach / promotion of data sets ..... 2



## 1. Statement of overall progress of project

The first progress meeting of SL-CCI phase 2 occurred on June 17<sup>th</sup> 2014. Some options of the project have been accepted by ESA. Some remaining deliverables from Phase 1 have been reviewed and accepted (PVASR, CECR, DPM, CAR) and the first deliverables for Phase 2 (KO+3) have been sent to ESA. User requirements (URD) have been updated. Algorithms are being developed and evaluated and the database is extended until 2013 for the next ECV extension, planned at the end of 2014.

## 2. Data Gathering and Quality for Phase 2

The SL-CCI project has been interviewed by the QA4ECV project dealing with the errors in the ECV processing. In addition to the validation of the new phase II algorithms, all releases of the SL-ECV products will be validated both internally and with external data. The user assessment work will also contribute to the quality estimation of the products, including a sea level closure budget approach and the involvement of global assimilation experiments (CRG). A better characterization of the altimetry errors at climate scales is also planned.

## 3. Evolution in product specification

The Product Specification Document has been updated, including a description of the last ECV release and details of the adaptation to Phase 2. It was delivered to ESA in June 2014.

## 4. Round Robin (Algorithms evolution)

Algorithm development is expected to finish in June 2015. To date, external corrections to the project have been evaluated (ocean tide model, orbit solution). For phase II, several tasks have been completed or are being performed including an update of atmospheric corrections for the next ECV extension, sensitivity of the MSL calculation to the orbit of the reference mission, GFZ orbit solution development, and sea level improvement in the Arctic seas.

## 5. Future Activities

Future activities will include technical developments carried out by the Earth observation team, namely new round robin reports, evaluation and development of new orbit solutions and improved Arctic sea level calculation. For the ECV production, the altimetry database will be updated for the V1.1 ECV extension (end of 2014). The project website hosting is planned to be transferred to another member of the team. A publication on the global SL-CCI project will be submitted.

## 6. User impact with Phase 1 products and feedback

The impact of the SL-CCI ECV products compared against previous products depends on the spatial and temporal scales analyzed. Feedback received from users relates to:

- More regular temporal extensions of the SL ECV products (improve the link between real and delayed time products);
- Improved error characterization of the products;
- Following the Climate Research Group activities, the differences between two SL ECVs are difficult to evaluate since their discrepancies are closed to the uncertainties of the models.



## 7. Project outreach / promotion of data sets

The project was represented at the EGU meeting in Vienna where the 5<sup>th</sup> project Newsletter was also released. The project website has been updated with descriptions of the phase 2 of the project, the ECV products and the publications of the Sea Level team. User feedback and comments about the use of the Sea Level products has been sought. The following publications are in preparation or currently under review:

M. Ablain, A. Cazenave, G. Larnicol, M. Balmaseda, J. Benveniste, A. P. Cipollini, Y. Faugere, M. J. Fernandes, O. Henry, J. Johannessen, P. Knudsen, O. Andersen, J. Legeais, B. Meyssignac, N. Picot, M. Roca, S. Rudenko, M. Scharffenberg, D. Stammer, G. Timms, Improved Sea Level record over the satellite altimetry era (1993-2010) from the Climate Change Initiative project. (In preparation).

J.-F. Legeais, M. Ablain and S. Thao, Evaluation of wet troposphere path delays from atmospheric reanalyses and radiometers and their impact on the altimeter sea level, 2014. Submitted to Ocean Science. (Under review).