



Data products from the ESA CCI Sea Level Budget Closure project

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Studies of the sea-level budget are a means of assessing our ability to quantify and understand sea-level changes and their causes. ESA's Climate Change Initiative (CCI) projects include Sea Level CCI, Greenland Ice Sheet CCI, Antarctic Ice Sheet CCI, Glaciers CCI and the Sea Surface Temperature CCI, all addressing Essential Climate Variables (ECVs) related to sea level. The cross-ECV project CCI Sea Level Budget Closure used different products for the sea level and its components, based on the above CCI projects in conjunction with in situ data for ocean thermal expansion (e.g., Argo), GRACE-based assessments of ocean mass change, land water and land ice mass change, and model-based data for glaciers and land hydrology. The involvement of the authors of the individual data products facilitated consistency and enabled a unified treatment of uncertainties and their propagation to the overall budget closure.

After conclusion of the project, the developed data products are now available for science users and the public. This poster summarizes the project results with a focus on presenting these data products. They include time series (for the periods 1993-2016 and 2003-2016) of global mean sea level changes and global mean sea level contributions from the steric component, from the ocean mass component and from the individual mass contributions by glaciers, the Greenland Ice Sheet, the Antarctic Ice Sheet and changes in land water storage. They are designed and documented in the consistent framework of ESA SLBC_cci and include uncertainty measures per datum. Additional more comprehensive information, such as geographic grids underlying the global means, are available for some components.

For the long-term trend, the budget is closed within uncertainties on the order of 0.3 mm/yr (1 sigma). Moreover, the budget is also closed within uncertainties for interannual variations.

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