

EGU21-10950

<https://doi.org/10.5194/egusphere-egu21-10950>

EGU General Assembly 2021

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



Sea level fingerprints due to ongoing land ice melt in altimetry data

Lorena Moreira¹ and Anny Cazenave^{1,2}

¹International Space Science Institute, Switzerland (lorena.moreira@issibern.ch)

²Laboratoire d'Etudes en Géophysique et Oceanographie spatiales (LEGOS), Toulouse, France (Anny.Cazenave@legos.obs-mip.fr)

The Global Mean Sea Level (GMSL) is rising at a rate of 3.3 mm/year over the altimetry era but at regional scale the behaviour is quite different. In some regions, the sea level rates are up to 2-3 times the global mean rate. The mechanisms behind these discrepancies are explained through the differences in the processes that affect the sea level at different scales. The concept of budget is used to express the superposition of signals that contribute to the change in sea level. At regional scale, apart from the contributions from steric and ocean mass components which are also present in the GMSL budget, the budget is also affected by atmospheric loading component and the static factors component. The static terms (also called fingerprints) include solid Earth's deformations and gravitational changes in response to mass redistributions caused by land ice melt and land water storage changes. The goal of this study is to detect the fingerprints of the static factors using satellite altimetry-based sea level grids corrected for steric and ocean mass effects. Our preliminary results show a statistically significant correlation between observed and modelled fingerprints in some regions of the oceanic basins.