



## **Quantifying the Geophysical Causes of Present-Day Sea-Level Rise**

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It is widely believe that anthropogenic warming has caused an accelerated sea level rise since the onset of the pre-industrial era as evidenced by the observed 20th century and the early 21st century (present-day) sea-level rise rate of 1.7 mm/yr, compared to  $\sim 0.1$  to 0.5 mm/yr during the previous 5 centuries before 1900. However, the evidence of the anthropogenic signals in the present-day sea level rise is arguably elusive. While the IPCC 2013 AR5 indicates the overall sea-level budget, i.e. geophysical causes contributing to present-day sea-level rise have been explained as compared to the observations, it is arguably that a number of contributors still have large discrepancies. Here we address the contemporary scientific question whether the geophysical causes contributing to the present-day global and regional sea-level rise could be fully explained by current sea-level observations using the fingerprint elastic loading theory, first published by H. Plag and J. Mitrovica et al. We use long-term tide gauge and XBT/Argo hydrography data records in favor of the shorter data span satellite altimetry and GRACE data sets and conduct the sea-level adjustment towards a quantification of the geophysical causes of present-day sea-level rise.