

level rise from January 1993 to May 2017 is about 2.5 mm/year. However, the sea level trends in the Black Sea are not constant over time. The analysis of monthly satellite altimetry and gravity time series between April 2002 and December 2014 demonstrates a rising trend at a mean rate of ~3.3 mm/year, and ~1.6 mm/year for total and mass-induced sea level changes in the Black Sea, respectively. In this sense, steric changes can be expected to contribute to the sea level rise in this basin. Nevertheless, we confirm that the non-seasonal sea level budget in the Black Sea is dominated by water mass changes.

This study demonstrated that GRACE data can be used to estimate non-steric sea level changes in the Black Sea. For the period of 2002–2017, the GRACE-derived water mass change shows a rising trend at a rate of about 2.3 mm/year. This change should be compared with steric-corrected altimetry observations for more accurate evaluation of the contributions to sea level change. It is important to identify the contributions at adapting to potential impacts of the sea level rise.

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