



Arctic Sea Level Change over the altimetry era and reconstructed over the last 60 years.

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The Arctic Ocean process severe limitations on the use of altimetry and tide gauge data for sea level studies and prediction due to the presence of seasonal or permanent sea ice.

In order to overcome this issue we reprocessed all altimetry data with editing tailored to Arctic conditions, hereby more than doubling the amount of altimetry in the Arctic Ocean with up to 10 times the amount of data in regions like the Beaufort Gyre region compared with AVISO and RADS datasets. With recent data from the Cryosat-2 SAR altimetry the time-series now runs from 1991-2015 a total of nearly 25 years.

Good altimetric data is seen to crucial for sea level studies and profoundly for sea level reconstruction where we present a 60 years sea level reconstruction based on this new data set.

We here present a new multi-decade altimetric dataset and a 60 year reconstruction of sea level based on this together with tide gauge information. The reprocessed dataset exhibit a mean sea level trend of 2.1 ± 1.3 mm/year (without Glacial Isostatic Adjustment correction) covering the Arctic Ocean between 66°N and 82°N with significant higher trend in the Beaufort Gyre region showing an increase in sea level up to 2011. Using GRACE gravimetry to study ocean mass variations we can nearly close the regional sea level budget over the last 10 years in the Arctic.