

Global Sea-level Rise Has Been Accelerating Since 1960



The recent acceleration in global sea-level actually started in the 1960s, around three decades earlier than previously thought, according to a recent publication of the National Oceanography Centre (NOC). The results of the study form part of the NOC's ongoing research into sea-level rise, which revealed last year that rising sea levels could cost £11 trillion worldwide annually by 2100, if the target of holding increasing global temperatures within 2°C of pre-industrial levels is missed.

The findings have been published in the [Nature Climate Change](#) journal and involve [NOC](#) scientists. Led by the [University of Siegen](#) in Germany, this study is the first to put a starting date on the acceleration and identify its main driving factors.

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Satellite measurements show the rate of global sea-level rise has been accelerating since at least the beginning of the satellite record, in 1992. The acceleration is largely due to increased melting from the Greenland and Antarctic ice sheets. However, until now it was unclear when the acceleration started and whether other factors were involved. This was primarily due to the difficulty of inferring global sea level from a sparse tide gauge record that was the only source of sea-level information prior to 1992. An international team of scientists addressed the limitations posed by the sparseness of the tide gauge record by using a novel approach, which combines the merits of the tide gauge and satellite datasets to estimate the global mean sea level since 1900 with unprecedented accuracy.

Southern Hemispheric Westerly Winds

NOC scientist Dr Francisco Mir Calafat, who is an author of this paper, said: "While the acceleration over the altimetry era has been largely attributed to ice melting, we have found that much of the acceleration prior to that period was due to the intensification and equatorward shift of Southern Hemispheric westerly winds. This led to changes in the circulation of the Southern Ocean, with a consequent increase in ocean heat uptake".

"This finding is significant because it highlights the importance of thermal expansion as a contributor to the sea-level acceleration, as well as providing corroborating evidence for the pattern of acceleration simulated by climate models in the Southern Ocean", Dr Mir Calafat said.

Details: [National Oceanography Centre](#) (photo [wikimedia.org](#)).