



Ministry for the
Environment
Manatū Mō Te Taiao

Coastal sea level rise, 1891–2015

Title

Coastal sea level rise, 1891–2015

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Description

Sea-level rise is a consequence of climate change. Increased global temperatures lead to rising sea-levels because warmer waters take up more space and glaciers and polar ice sheets melt into the ocean. Sea-level varies naturally from place to place due to local ocean circulation and temperatures and the movement of the land relative to the sea. For example, earthquakes can lift or drop the land. Linear trends were provided by NIWA and Emeritus Professor John Hannah (previously University of Otago). Ideally, linear trends in sea level would be reported if there are at least 50 years of data to account for climate variability from climate oscillations such as the 20–30 year Interdecadal Pacific Oscillation (IPO) and the shorter ENSO cycle. Such climate variability can be seen in the increase in annual mean sea level in 1999–2000, when the IPO across the entire Pacific Ocean changed to a negative phase. While the Moturiki data cover 43 years, it was considered appropriate to apply a linear trend to further extend the number of reported sites. Further detail on the data processing (including adjustments for historic datum changes) and methods used for the trend analysis can be found in Hannah (1990), Hannah (2004), and Hannah and Bell (2012). More information on this dataset and how it relates to our environmental reporting indicators and topics can be found in the attached data quality pdf.

Source

NIWA; John Hannah

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Coverage

Auckland: 1899–2015 Dunedin: 1899–2015 Lyttelton: 1901–2015 Moturiki: 1973–2015 New Plymouth: 1920–2015 Wellington: 1891–2015

Identifier

AC17/054

Type

Dataset

Language

eng-nz

Subject

climate change, greenhouse gas concentrations, greenhouse gas emissions, temperature,

