



Number of extreme wave events exceeding 4m in coastal regions, 2008–15

Title

Number of extreme wave events exceeding 4m in coastal regions, 2008–15

Creator

Environmental Reporting, Ministry for the Environment and Statistics New Zealand

Date

2016-10-27

Description

Extreme wave indexes estimate the occurrence of extreme wave events in coastal and oceanic waters. Extreme wave indexes estimate the number of times a significant wave height exceeds one of three threshold values for at least 12 hours in 24 marine regions. The three wave-height thresholds are four metres, six metres, and eight metres. This indicator estimates the exceedances of a wave-height threshold for each year from 2008 to 2015 in coastal regions. Significant wave height is a measure of the 'typical' wave height in a place over a time period. It is four times the standard deviation of the water surface if, for example, you were to measure water moving up and down a jetty piling for an hour. The largest individual wave will typically have a height around twice the significant wave height. We use three wave-height thresholds because of the regional variation in extreme wave events. In general, the north experiences less exposure to consistently strong winds, and the waves generated by them, than the south. Four-metre tall waves are considered extreme in the northern-most parts of New Zealand but are more common in the south. For the southern-most parts of New Zealand, eight-metre waves better represent extreme wave events. This dataset relates to the number of extreme wave events exceeding the four metre threshold in coastal regions.

Source

Source: NIWA Method: We only include wave events where the relevant height threshold was exceeded for a minimum of 12 hours. This means that there was both a high tide (when overtopping and damage to coastal infrastructure, for example, is most likely) and a low tide during an event. We estimate extreme wave indexes for 24 regions around New Zealand, comprising 18 coastal and six oceanic regions. The 18 coastal regions cover the area from the shoreline to 100km from the coast and correspond to those used by the MetService for marine weather forecasts. The six oceanic regions cover New Zealand's Exclusive Economic Zone. The indexes were generated using NIWA's operational wave forecasting model (NZWAVE-12). This model has a 12km resolution and models wave heights using: - wind from NIWA's NZLAM-12 weather forecast model - swell from NIWA's global wave forecast model For more information on methodology, including limitations, please refer to Gorman (2016).

Coverage

-48.03333 165.11667 -33.52222 -175.66667

Identifier

<https://data.mfe.govt.nz/layer/53500-number-of-extreme-wave-events-exceeding-4m-in-coastal-regions-200815/>

Language

eng

Subject

New Zealand

Subject

MARINE

Subject

MARINE-Biology

Subject

FAUNA-Vertebrates

Subject

ECOLOGY-Habitat

Subject

BOUNDARIES

Subject

environment