



Abstract Details

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Title: The Problems and Challenges of Using Tide Gauges to Monitor and Analyse Long-Term Sea Level Change

Abstract:

The first tide gauge measurements made in New Zealand, for which still exist, were collected in Wellington in 1891. Within 10 years of this, tide gauges were operating at the three other major ports of Auckland, Lyttelton and Dunedin. These gauges have generally continued to operate until the present day producing records that reveal a rising sea level trend of 1 mm/yr (Hannah, 2004). The analysis of these gauge records, however, has not been easy. Issues of datum continuity (particularly when renewing or replacing tide-gauges), loss of data, localised subsidence, and connecting to stable levelling benchmarks have all been problematic issues. Other factors that have contributed to analysis difficulties have been anthropogenic influences (influence of port construction works and shipping activity), and tectonic movements. In this latter regard, New Zealand straddles the boundary of two major tectonic plates that are converging at a rate of approximately 55 mm/yr. This paper not only describes the wide variety of problems encountered in undertaking the recently completed long-term sea level trend analysis, but also details the way in which these problems were identified and the mechanisms for their resolution. The end result has been a sea level time series that has been able to make a significant contribution to the global picture of sea level change. References J.Hannah, Geophys. Res. Lett., 31, L03307 (2004)

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