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Linking changes in gravity and tidal admittance at White Island volcano, New Zealand, to volcanic activity

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The tidal potential is the best known excitation mechanism on planet Earth and the response to it gives valuable insight into the elastic properties of the Earth's crust. In volcanic areas this response is often anomalous as gravity changes on volcanoes have been associated with the intrusion of fresh magma, but are also masked by geothermal activity. Here we will present a two-year long, continuous, high precision gravity record from White Island, New Zealand, to find the potential correlation with volcanic activity. The gravity record will be examined in two ways: (i) a direct cross-correlation of gravity with volcanic activity and (ii) linking temporal changes in the tidal response to changes in volcanic activity.