Re-establishing the geodetic system after the 14 November 2016 Kaikoura earthquake

Nic Donnelly (New Zealand)

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SUMMARY

On 14 November 2016, a magnitude 7.5 earthquake struck the North Canterbury and Marlborough regions of the South Island of New Zealand. This earthquake resulted in widespread damage to infrastructure and severely disrupted the geodetic system in the region. With slip of up to 10m at the fault rupture and metre-level movements over a wide area, Land Information New Zealand immediately commenced work to re-establish the spatial infrastructure for the region. This required the re-establishment of both the geometric datum, New Zealand Geodetic Datum 2000, and the recently released quasigeoid-based vertical datum, New Zealand Vertical Datum 2016.

This work is ongoing, involving precise GNSS surveys, data analysis and deformation modelling. This paper will outline how the geodetic datums are being progressively re-established, as well as discussing the impact of the earthquake on other spatial data. It focusses particularly on the tools and data that have been provided to surveyors and other spatial professionals to enable them to undertake accurate positioning while the recovery is underway.