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Analysis of post-seismic gravity changes for the Japan-Tohoku 2011 earthquake using GOCE gravity gradients

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Analysis of the GOCE gradiometer data has shown that the Japan-Tohoku earthquake 2011 is visible in these data. As GOCE aims at small spatial scales, it therefore complements the accurate long wavelengths of GRACE and we show that a combined analysis of GOCE and GRACE data allows to map this earthquake event with unprecedented accuracy and resolution. We present our combination of GOCE gradients and GRACE data where we compare the results with state-of-the-art fault-slip modeled gravity observations. We conclude that GOCE contributes to an enhanced geophysical interpretation and gives new insights in the observation of such a tremendous seismic event as the Tohoku-Oki 2011 earthquake.