

Calibrating coseismic coastal land-level changes during the 2014 Iquique (Mw=8.2) earthquake (northern Chile) with leveling, GPS and intertidal biota

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© 2017 Jaramillo et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. The April 1st 2014 Iquique earthquake (MW 8.1) occurred along the northern Chile margin where the Nazca plate is subducted below the South American continent. The last great megathrust earthquake here, in 1877 of Mw 8.8 opened a seismic gap, which was only partly closed by the 2014 earthquake. Prior to the earthquake in 2013, and shortly after it we compared data from leveled benchmarks, deployed campaign GPS instruments, continuous GPS stations and estimated sea levels using the upper vertical level of rocky shore benthic organisms including algae, barnacles, and mussels. Land-level changes estimated from mean elevations of benchmarks indicate subsidence along a 100-km stretch of coast, ranging from 3 to 9 cm at Corazones (18°3