

## Coseismic subsidence associated with the 1960 Chilean earthquake detected from fossil diatom assemblages.

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We present fossil records of coseismic subsidence associated with the 1960 Chilean earthquake. Coseismic subsidence of the 1960 Chilean earthquake is shown by contrast of lithostratigraphy and changes in fossil diatom assemblages. The delta of Rio Maullin is in the middle of the rupture of the 1960 event and the delta was subsided during the earthquake (Plafker and Savage, 1970).

To geologically reconstruct amount of the subsidence associated with the 1960 event, we tested diatom-based transfer functions for land-level reconstructions. Below the tsunami deposit (before the earthquake), freshwater diatom species *Diadismis contenta*, *Hantzschia amphioxys*, and *Pinnularia subrabenhorstii* dominated. In contrast, above the tsunami deposit (after the earthquake), brackish diatom species *Caloneis bacillum*, *Navicula cincta*, and *Navicula salinarum* dominated. This changes in assemblages shows that the study location submerged associated with coseismic subsidence during the earthquake. As the result of diatom-based transfer functions for land-level reconstructions, amount of the subsidence is estimated  $\sim 1$ m or more. This is not inconsistent with account of eyewitnesses.

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