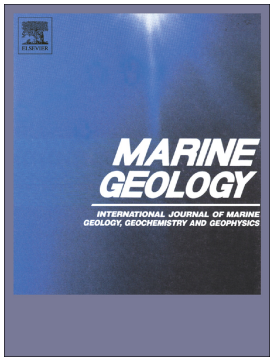

The September 16, 2015 Illapel tsunami, Chile – Sedimentology of tsunami deposits at the beaches of La Serena and Coquimbo

Heinrich Bahlburg, Vanessa Nentwig, Matthias Kreutzer

PII: S0025-3227(16)30395-4
DOI: doi: 10.1016/j.margeo.2016.12.011
Reference: MARGO 5563

To appear in: *Marine Geology*

Received date: 4 August 2016
Revised date: 5 December 2016
Accepted date: 29 December 2016

Please cite this article as: Heinrich Bahlburg, Vanessa Nentwig, Matthias Kreutzer , The September 16, 2015 Illapel tsunami, Chile – Sedimentology of tsunami deposits at the beaches of La Serena and Coquimbo. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Margo(2016), doi: 10.1016/j.margeo.2016.12.011

The September 16, 2015 Illapel Tsunami, Chile – Sedimentology of tsunami deposits at the beaches of La Serena and Coquimbo

Heinrich Bahlburg*, Vanessa Nentwig, Matthias Kreutzer

Institut für Geologie und Paläontologie, Westfälische Wilhelms-Universität, Corrensstrasse 24, 48149 Münster, Germany

*corresponding author, hbahlburg@uni-muenster.de

Abstract

On September 16, 2015, a M_w 8.3 earthquake occurred off the coast of central Chile, 46 km west of the town of Illapel. The quake caused a tsunami registered mainly between the coastal towns of Caldera (c. 27°S) and Pichidangui (c. 32°S) . At Coquimbo and La Serena (c. 30°S) the tsunami attained large wave heights on the order of 4.5 m leading to flooding and destruction of infrastructure including the coastal road. We report the results of a post-tsunami sedimentological field survey undertaken in October 2015 focussing on the beaches of Coquimbo and La Serena.

At Playa Changa, a beach at Coquimbo affected by the highest waves, the tsunami destroyed large parts of the coastal road embankments on both the seaward and landward sides. On the landward side the tsunami distributed triangular concrete construction elements of the embankment across the coastal plain. On the seaward side granite boulders of up to 2 t were ripped out of the coastal road embankment and transported onto the beach. Sand used in construction of the embankment was redistributed across the beach as an outflow deposit.