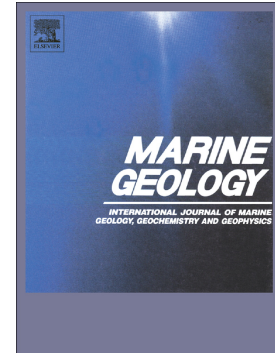


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The September 16, 2015 Illapel Tsunami, Chile – Sedimentology of tsunami deposits at the beaches of La Serena and Coquimbo

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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 Pichidanguí (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.

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