



Insights in the UNESCO Post-Event Field Survey of the September 28th, 2018 Palu Tsunami

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A tsunami followed the September 28th, 2018, Palu earthquake (Mw7.5) that caused widespread devastation in the Bay of Palu on the Island of Sulawesi, Indonesia. The automatic source estimation computed a left lateral strike-slip mechanism at a shallow depth with an earthquake epicentre located about 80 km north from the city of Palu. A large part of the strike-slip rupture occurred on land, and this mechanism usually does not produce enough uplift to generate a tsunami of that intensity which surprised authorities and the scientific community. First modelling efforts could also not explain the observed impact of the tsunami when considering only the seismic source. International efforts led to a UNESCO international tsunami survey with the objective to quantify the tsunami impact along the shore of the affected region. The team performed in total 78 measurements composed of runup height and inundation height in 32 locations along the 125 km coastline in the Palu Bay and up to the earthquake epicentre. The tsunami caused significant destruction inside the bay, and outside only minor effects have been observed. The maximum measured values reach 9.1 m for runup height and 8.7 m for the inundation height close to Benteng in the southwest of Palu Bay. In ten locations inside the bay, the team found coastal sectors that collapsed into the sea after the earthquake. Also, the distribution of the measured runup and inundation height around the collapsed areas suggest their contribution as secondary tsunami sources. Here, we present the findings of the field survey with a particular focus on the areas around Pantoloan and Benteng. In Pantoloan, tide gauge measurements are available and close to Pantoloan security cameras captured the impact of the tsunami. In Benteng, the team identified the biggest coastal collapse in their survey and measured the highest runup.

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