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Experimental study of tsunami-driven transport of micro-plastic on sedimentary slope

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We study experimentally tsunami-induced transport of micro-plastic. The micro-plastic is modelled by spheres of different densities, some of which are lying on the bottom slope, while others are floating. The bottom slope is covered with the sand, which allows us to study micro-plastic interaction with sand of different sizes. The spheres are initially placed at different locations along the slope with respect to the wave breaking point. Experiments are performed in a small wave flume of the Hydrodynamics laboratory of the University of Oslo. It is 3 m long and 0.1 m wide. The water depth is 5 cm. The tsunami is modelled by breaking solitary-like waves with amplitude, normalized by the water depth $\frac{a}{h} = 0.47$. The waves propagate towards a sandy beach breaking on the slope, impact the floating and/or lying on the bottom spheres, and the spheres get displaced. Here we study the displacement of the spheres from their initial position with respect to their characteristics (densities), initial positions with respect to the wave breaking point, the number of consecutive waves and parameters of the sand.