



## **Sediment transport modelling during 2004 tsunami runup at Lhok Nga (Sumatra, Indonesia)**

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Despite considerable progress over the last fifteen years, we cannot yet conclusively deduce the magnitude (or “size”) of past tsunamis after their deposits. Developing such quantitative tools requires a better understanding and modelling of sediment transport and deposition by tsunamis of distinct magnitudes. Nevertheless, the sediment source and the topography control many aspects of the deposition inland: thickest deposits in the topographic lows, great spatial variations in thickness and upper laminated texture when the sedimentation was limited by steep slopes, very poor sorting and landward coarsening at the wave breaking line, multimodal grain-size distributions reflecting different sources of sediments. Therefore understanding the mechanism of turbulent flow, bottom shear stresses and sediment transport induced by tsunami is an important issue.

We perform numerical simulation of the 2004 tsunami run-up induced sediment transport along the coast of LhokNga (Aceh Province, Indonesia). We propose the necessary parameter, such as boundary layer thickness, turbulent intensity, suspended sediment concentration in order to simulate the mode transport of sediment and infer the volume of sediments deposited. These results are then compared to observed characteristics and volumes of the 2004 tsunami deposits.