



# Supplementary material: Numerical simulation of submarine landslides and generated tsunamis: application to the on-going Mayotte seismo-volcanic crisis

*Document complémentaire : Simulation numérique de glissements sous-marins et des tsunamis associés : application à la crise sismo-volcanique en cours à Mayotte*

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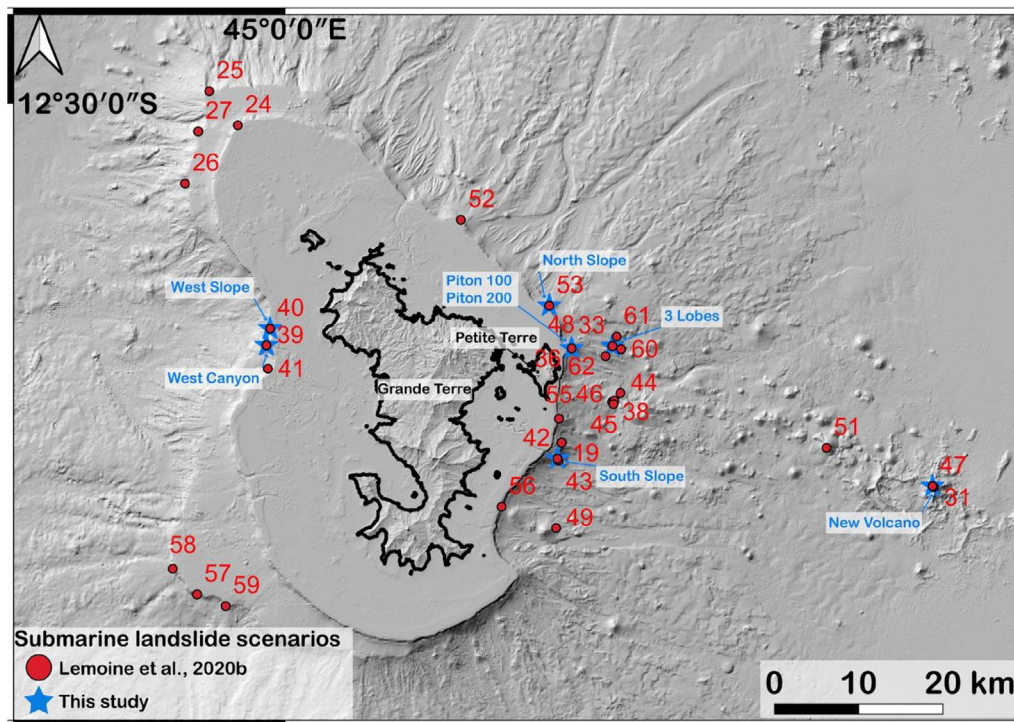
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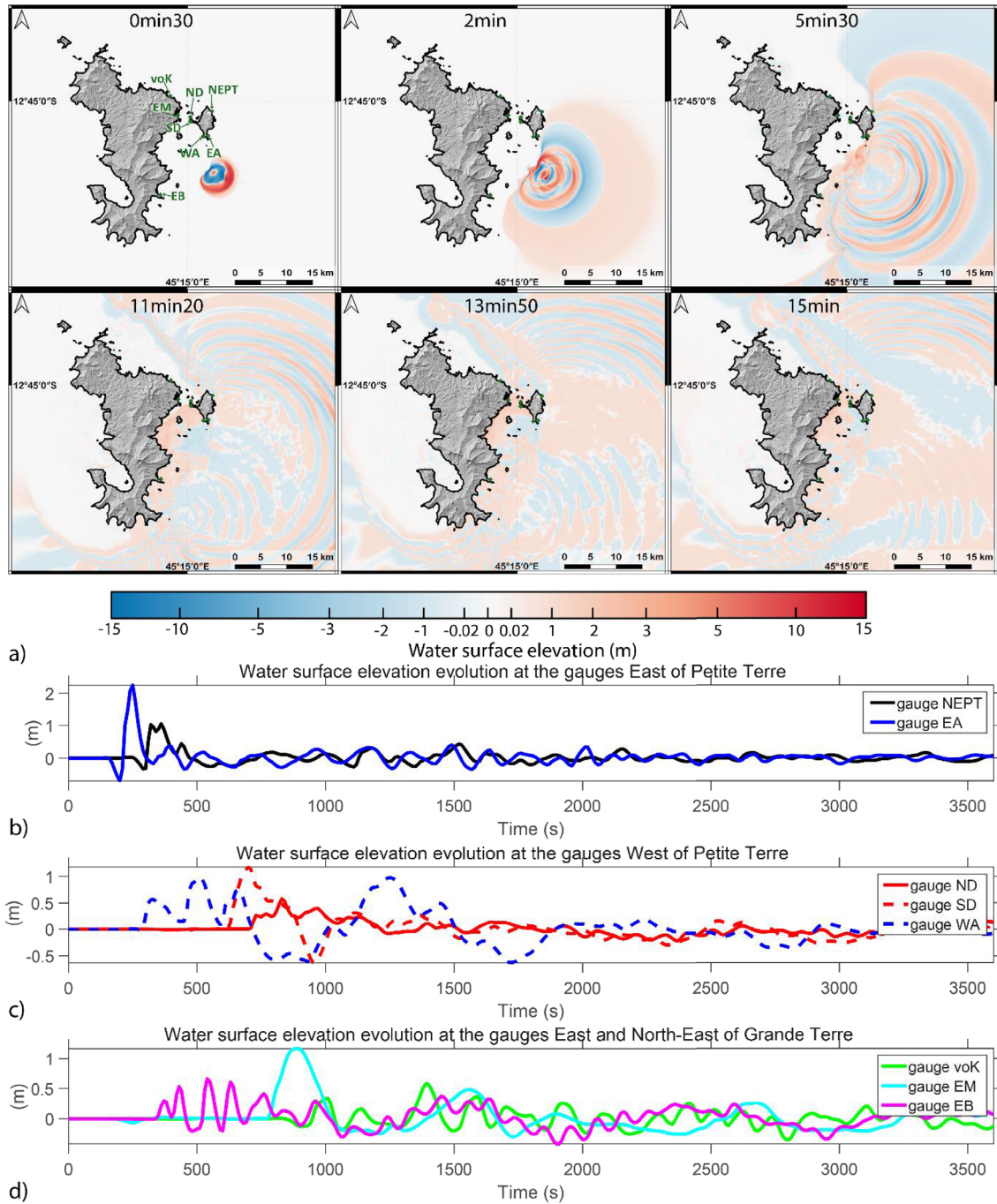
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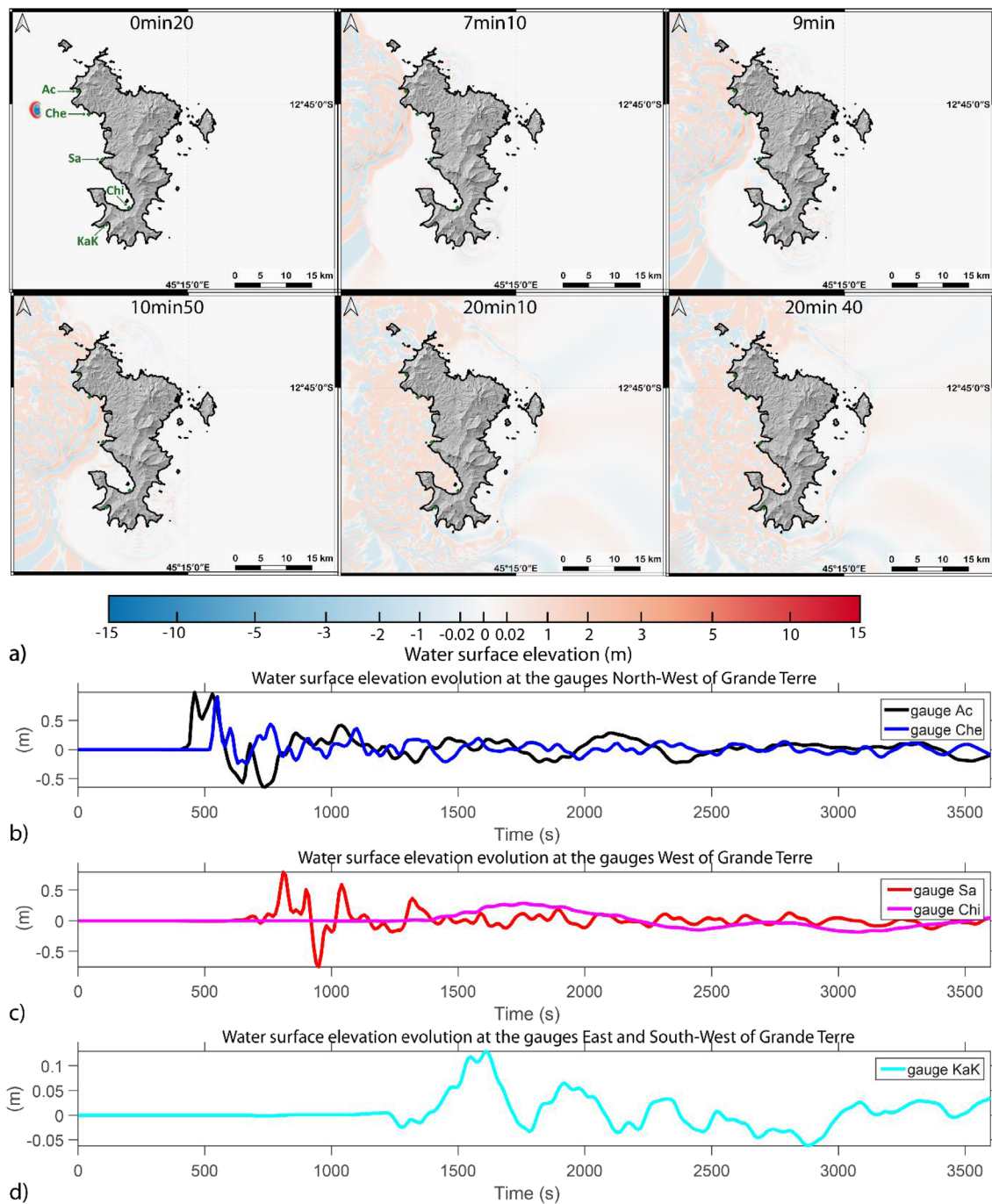
\* Corresponding author.



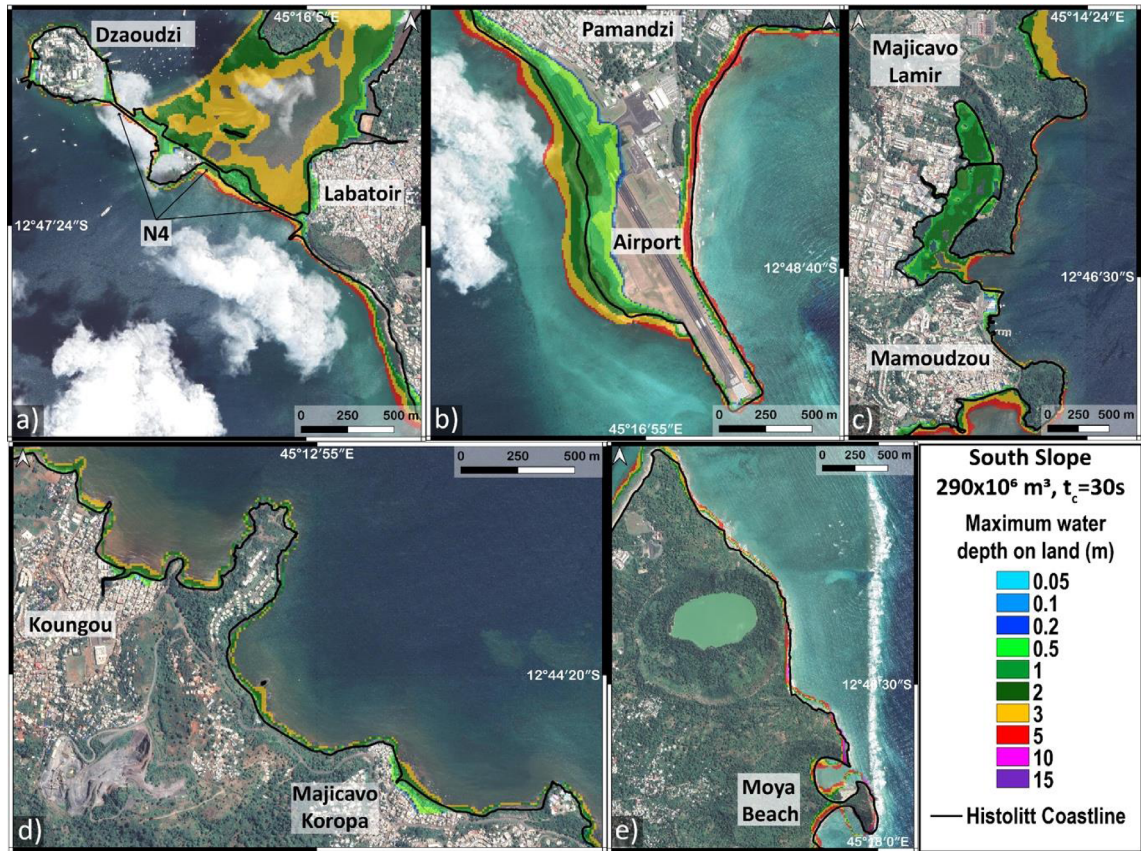
**Supplementary Figure S1.** Locations of landslide scenarios from Lemoine et al. [2020b] (red dots) and from this study (blue stars).



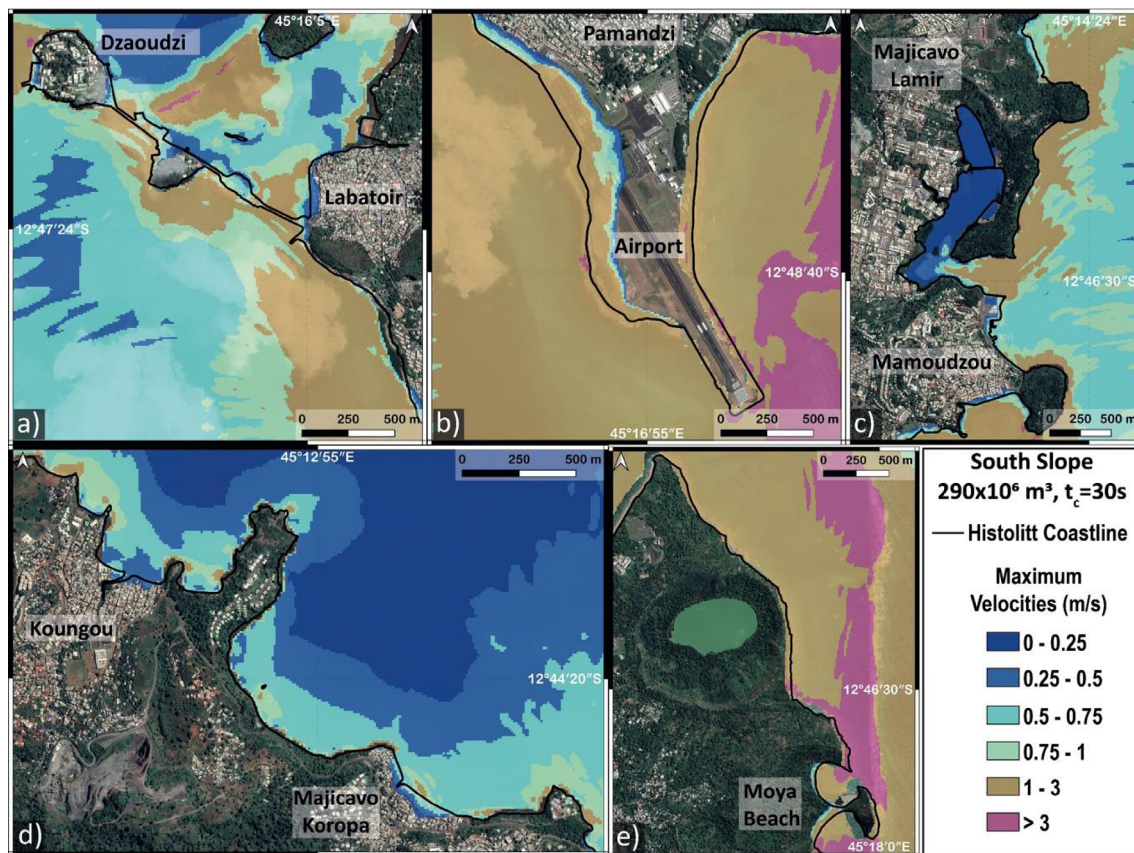
**Supplementary Figure S2.** (a) South Slope scenario (resolution: 50 m): wave propagation from 30 s to 15 min after the landslide. The color scale represents the elevation of the calculated sea surface at a given time. The green dots on the maps correspond to the emplacement of the gauges. (b–d) Evolution of the elevation of the sea surface at different gauges (NEPT, EA, ND, SD, WA, voK, EM, EB). The locations of the gauges are indicated in Figures 1 and S2a.



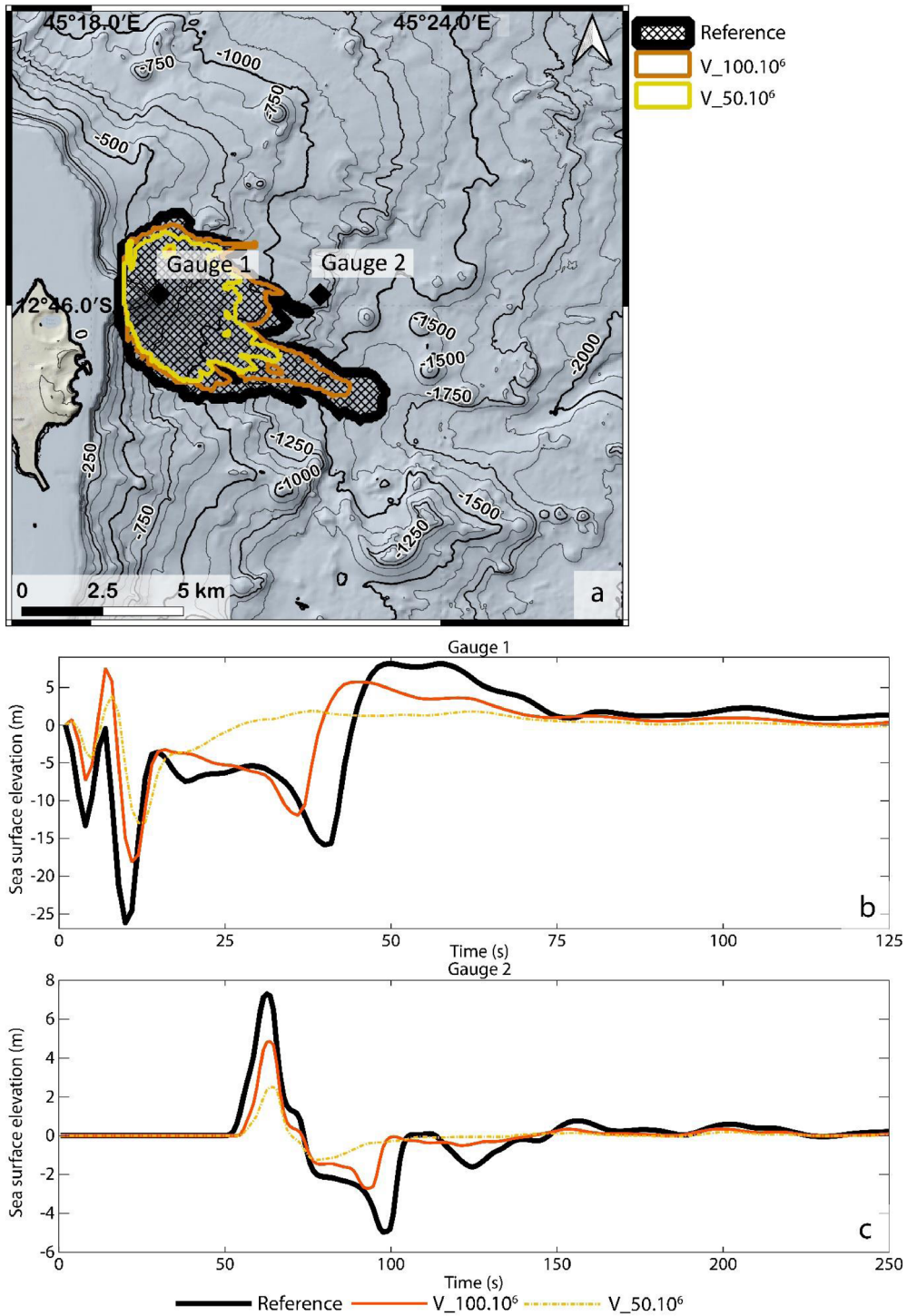
**Supplementary Figure S3.** (a) West Canyon scenario (resolution: 50 m): wave propagation from less than 20 s to 20 min after the landslide. The color scale represents the elevation of the calculated sea surface at a given time. The green dots on the maps indicate the locations of the gauges. (b–d) Evolution of the elevation of the sea surface at different gauges (Ac, Che, Sa, Chi, KaK). The locations of the gauges are indicated in Figures 1 and S3a.



**Supplementary Figure S4.** Maximum water depths (MWD) with 10 m resolution for the South Slope scenario. The color scale represents the value of MWD calculated for each point: (a) Dzaoudzi and route N4, (b) Airport and Pamandzi, (c) Mamoudzou, (d) northeast coast of Petite Terre, and (e) Kougou. The bold black line is the Histolitt coastline from SHOM.



**Supplementary Figure S5.** Maximum water velocities in m/s with 10 m resolution for the South Slope scenario. The color scale represents the value of the maximum water velocity calculated for each point: (a) Dzaoudzi and route N4, (b) Airport and Pamandzi, (c) Mamoudzou, (d) northeast coast of Petite Terre, and (e) Kougou. The bold black line is the Histolitt coastline from SHOM.



**Supplementary Figure S6.** Sensitivity tests performed on the Piton scenario with varying volume (parameters can be found in Table 4). (a) Deposit extension for each sensitivity test and locations of the gauges, (b) sea-surface elevation at gauge 1, (c) sea-surface elevation at gauge 2. The reference simulation is in the thick black curve.