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Stromboli volcanic island as a source of tsunami hazard for the Tyrrhenian Sea

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The recent paroxysmal crisis occurring on the island of Stromboli (Tyrrhenian Sea, Italy), manifesting into two main events during summer 2019 (3rd July and 28th August), renovated the attention on the possibility of tsunami generation induced by volcanic activity. The Stromboli edifice is characterized by the Sciara del Fuoco scar on its north-western flank channeling most of the material ejected from the crater to the sea.

In this area, in December 2002, two landslides (the first submarine, the second subaerial) triggered large waves affecting the whole coast of the island, causing severe damages but fortunately no casualties, due to the non-touristic period. The tsunami rapidly dissipated with distance, being observed in Panarea (20 km south-east of Stromboli), as is typical of non-seismic tsunamigenic sources. A similar occurrence during summer would have resulted into dramatic consequences, especially along the Stromboli coasts.

In this study, the tsunamigenic potential associated with destabilized mass along Stromboli flanks is evaluated by means of numerical, in-house developed, codes with the aim of providing insights on the tsunami hazard along the coasts of Stromboli, of the surrounding Aeolian archipelago and in general in a larger domain covering the southern coasts of Tyrrhenian Sea as well.