LANDSLIDE HAZARD

Landslides hazard affecting Baia site

Overview

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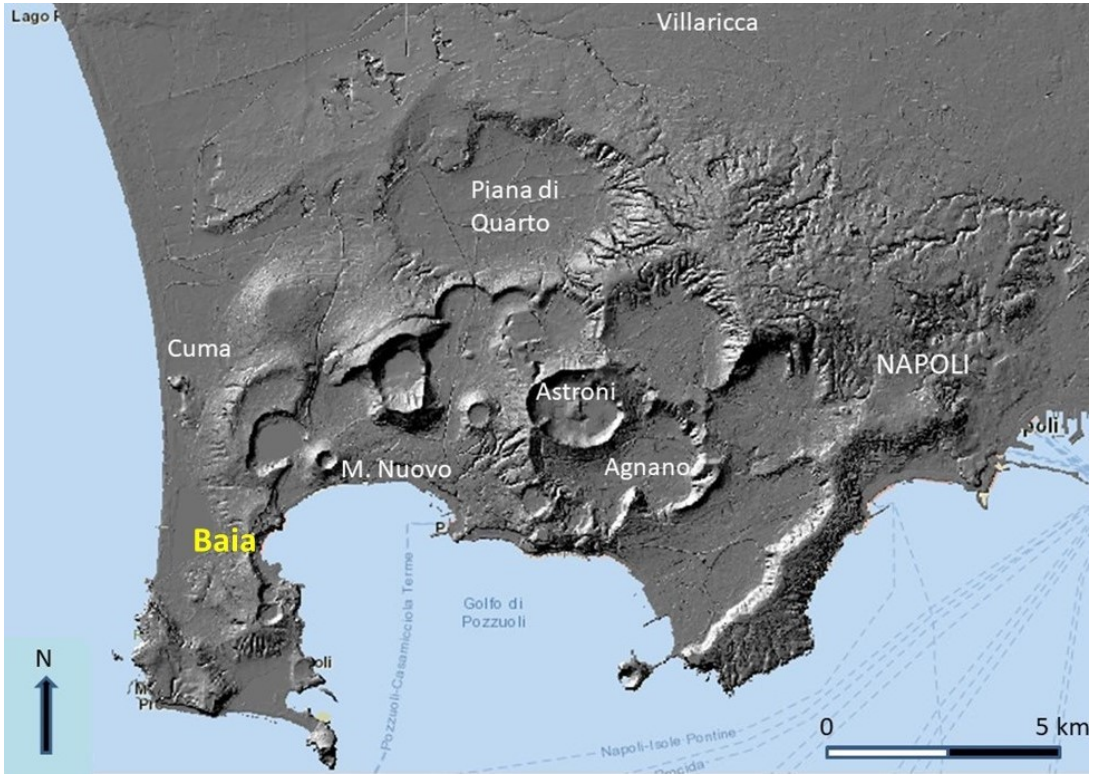
1. The Phlegraean Fields setting

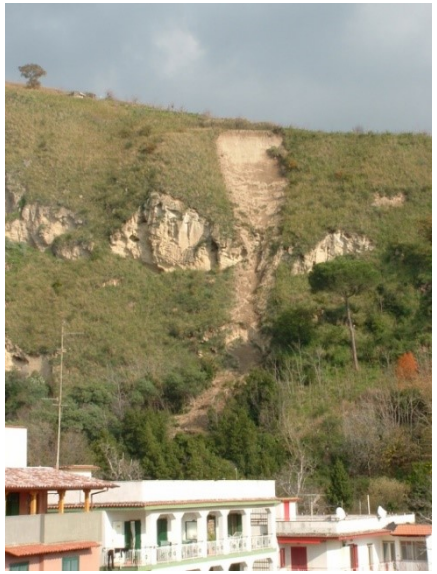
Baia is located in the Phlegraean Fields, west of Naples (Campania, Southern Italy).
The Phlegraean Fields constitute a volcanic field in state of unrest belonging to the Phlegraean Volcanic District.
Volcanic activity began during the middle Pleistocene but on surface the deposits of the activity relating to the last 60 ky outcrop.
The most recent eruptive event is the eruption of Monte Nuovo in 1538 AD.



Predominant eruptive activity is explosive type, including depositional mechanisms like pyroclastic flow, surge and fallout type, and subordinately effusive type with the emission of lava flow.
During the final phase of the eruptive events responsible for the placement of the Ignimbrite Campana (39 ky BP) and the Neapolitan Yellow Tuff (12 ky BP) deposits, also named respectvely. CI and NYT, two wide volcano-tectonic collapses occurred originating characteristic caldera shapes, clearly visible in the landscape.
The landscape is very articulated and characterized by reliefs with short and steep slopes that rise up to 458 m a.s.l. and flat areas corresponding to the bottom of craters and collapsed areas.

2. Landslides in the Phlegraean Fields

In the Phlegraean Fields area, landslides are mainly represented by debris slides and earth slides, sometimes evolving in flows.
Landslides affect post NYT incoherent pyroclastic deposits mainly, with mobilized volumes of a few tens/hundreds of cubic meters.
Rock falls phenomena are widespread along the steeper slopes and on tuff outcrops.
A crucial role in the triggering of landslides is represented by prolonged meteoric events and in the case of rock falls, by the high degree of fracturing of the rock mass.

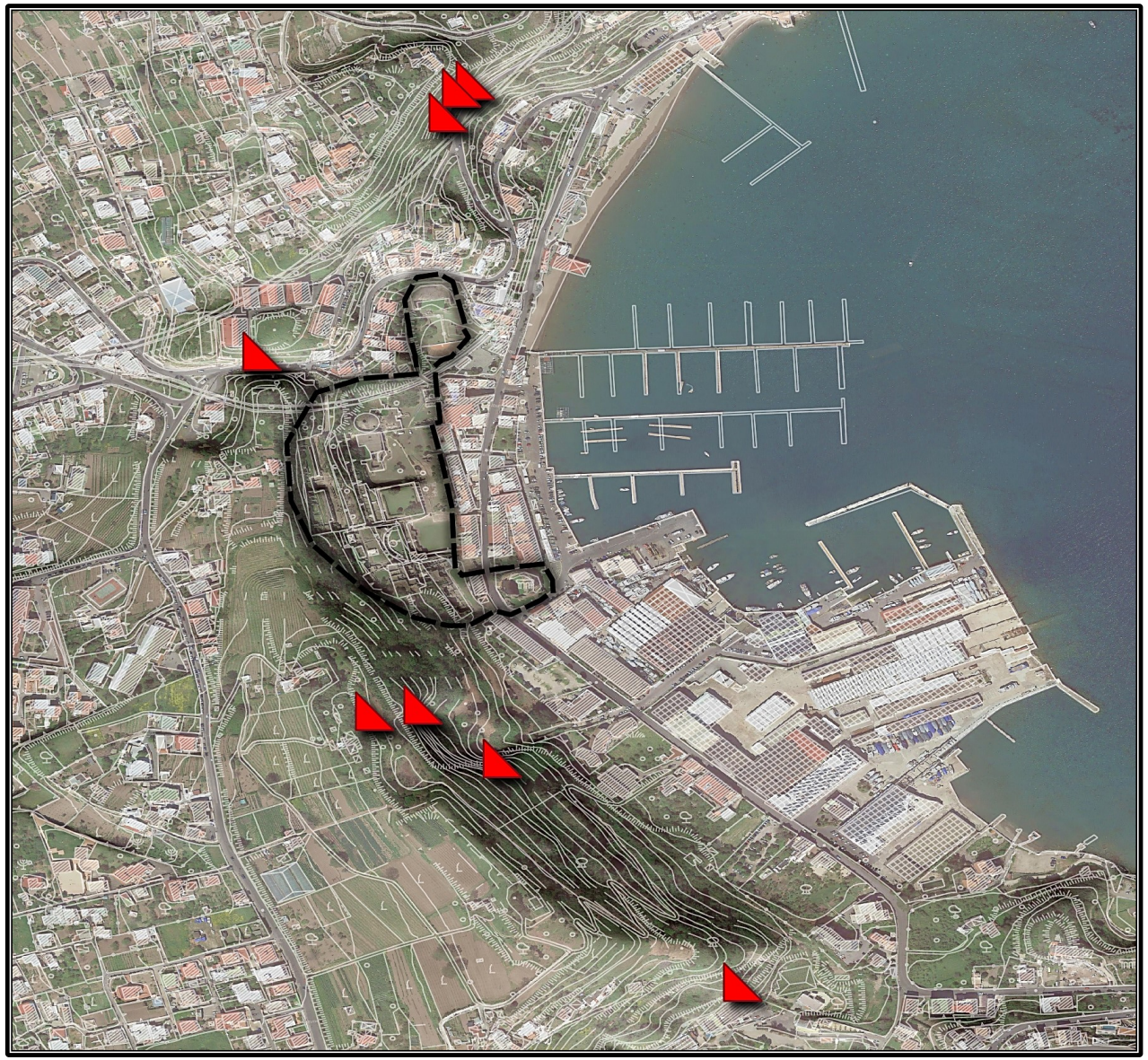


3. The Baia's Roman Thermae area
3.1 Geomorphological setting

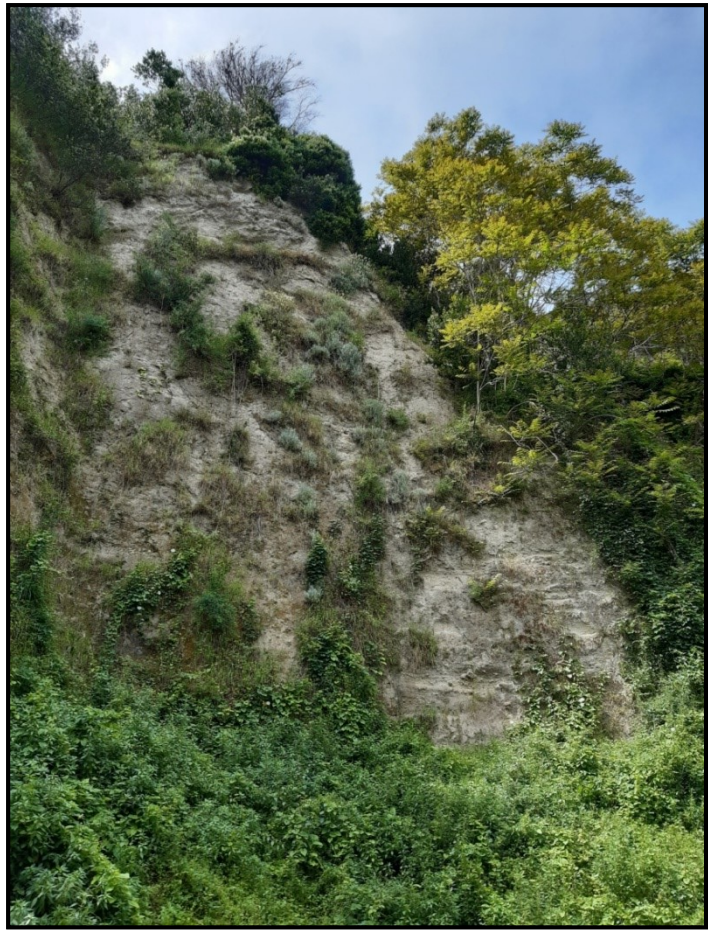
The Roman Thermae of Baia extend along the western slope of the Baia volcano, whose eruption occurred in the time interval between 9525 and 9686 ys BP.
In the area of the archaeological park, the products belonging to the second stratigraphic unit deposited by the eruption ouctrop, consisting of an alternation of fall and flow deposits, more clearly visible in the cavities excavated in the subsoil.
A wide and still partly unexplored network of tunnels and cisterns, used to feed the thermal structures, is present in the subsoil.

Today's landscape (on right), characterized by a sequence of ordered terraces, is very different from the landscape that characterized the abandoned area for many centuries, when the area was used as a vineyard (on left), before the start of archaeological excavations.

3. The Baia's Roman Thermae area
3.2 Landslides



Location of landslides censed in the area of Roman Thermae of Baia.



In the archaeological site area and in the surroundings, landslides are small in size and mainly include rockfalls along sub-vertical cliffs, often involving the remains of ancient masonry (right).

Masonry blocks fall in the upper archaeological area