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The offshore perspective in evaluating volcano-tectonic hazard within the Campi Flegrei district, Eastern Tyrrhenian coastal zone

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The Campi Flegrei is an active volcanic district located west of the city of Naples, largely on the continental shelf of the Eastern Tyrrhenian margin, that has been characterized by dominantly explosive eruptions during the latest Quaternary. This is one of the highest volcanic risk-prone areas of the world and likely the only example in the historical record of a caldera where dramatic ground/seafloor deformation (up to 3.5 m of uplift between 1970 and 1984) was not followed by a volcanic eruption.
Recent research on the Campi Flegrei has shown that a significant part of the offshore regional tectonic framework, the volcanic structure and the active sedimentary processes are still largely unknown. Even the age and the basic geometry of the offshore caldera-like system is poorly constrained.
In this study we present the preliminary results of the interpretation of a grid of high resolution multichannel seismic profiles acquired in the Napoli Bay in January 2008.
The main results of the research include the recognition of: a) dramatic recent (< 6 ka) folding and uplift of sub-seafloor strata close to the Pozzuoli coastline and associated instability of unconsolidated sediments; b) potentially seismogenetic active faults; c) recent (< 6 ka) epi-superficial magmatic intrusion (laccoliths) off the Pozzuoli Bay.
Accurate description and mapping of these offshore features represent necessary pieces of information to reconstruct the whole geometry and stratigraphy of the Campi Flegrei system. The understanding of the recent geodynamic evolution of the Pozzuoli Bay is also essential to obtain a reliable scenario for the evaluation of natural hazards and provides significant support for the integrated management of the coastal zone.