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How medium-size resurgent calderas work: the case of Pantelleria, Ischia and the unrest Campi Flegrei structures

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Assessment of time and space relationships among magmatism, volcanism, and resurgence of medium-size calderas is a necessary tool to formulate a general model for their dynamics which also permits to forecast their evolution.
To define a general hypothesis for the Campi Flegrei caldera, in a persistent state of unrest, the Ischia and Pantelleria medium-size resurgent structures, in variable stages of evolution, have been investigated. In particular some parameters such as the structural and volcanological evolution, with emphasis on resurgence dynamics and coeval volcanism, and the evolution, present state and role of the magmatic system in resurgence, have been defined. For the Campi Flegrei caldera, the data collected during unrest episodes have also been taken into account. This innovative approach adds a time-perspective on how resurgent calderas behave. The proposed general hypothesis will help in long- and short-term volcanic hazards assessment and will support Civil Defence Authorities in elaborating actions devoted to volcanic risk reduction.