

Why is the central area of the Alburni Mts in southern Italy so full of caves?

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The Alburni Mts represent one of the most important karst area of southern Italy, with about 250 registered caves. Located in the southern Apennines, they constitute an impressive carbonate massif within the Mesozoic-Cenozoic Campania-Lucania platform. The study area is located inside the National Park of Cilento, Vallo di Diano and Alburni, and is bounded by two major rivers: the Calore and Tanagro rivers. This area has been repeatedly affected during Pleistocene by the activity of a regional, partly blind, NW-SE-striking fault system responsible for several huge earthquakes.

The massif is limited to the north by an important normal fault zone (Alburni Line), whereas towards the E-SE it is bounded by a complex fault system linking the Alburni Mts to the Maddalena Mts across the Auletta basin and the Vallo di Diano valley. The entire massif is structured by NW-SE trending transtensional faults delimiting half-graben basins, and offset also by NE-SW trending faults. In particular, structural and geomorphological data have shown that the central area of the calcareous ridge is characterized by a relative structural low rhombic-shaped in planimetric view. Approximately 180 karst caves of the known 250, including some of the most significant from a speleological viewpoint, are located in this area. Is this simply due to repeated exploration activity in the last 25 years in this specific sector or might it be related to geological matter? New morphometric and structural data suggest that a relevant transversal structure, consisting of a complex NE-SW fault system, responsible for the genesis of the downthrown area in the central sector of the flat-topped ridge, was able to create the tectonic framework for the development of a great number of karst caves which present peculiar features and hydrological behaviour due to such structural controls. In this contribution we present and discuss these data, aimed at contributing to increase the knowledge on an area of sure karst and speleological interest.