



The Impossible cave in the Classical Karst

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The Impossible Cave has been discovered, near Trieste (Classical Karst, northern Italy) in the year 2004 during road construction and up to today has been explored for more than 3 km.

This cave opens in Paleocene - Eocene pure limestones, similarly to the ones situated in Rosandra Valley (placed a few hundreds meters from the entrance of this cave) that is the better developed cave system in the Karst of Trieste.

In the area where the Impossible Cave has been found, the calcareous strata form a knee fold and overthrusts the marly arenaceous strata of the Eocene Flysch of Trieste with a large NW-SE fault.

The cave is situated approximately 500 m from the contact between the limestones and the Flysch. The large galleries that form the Impossible Cave are better developed in an E-W general direction but that is the result of an alternate conditioning by dinaric and anti-dinaric structures; in the other side, the smaller galleries are orientated NW-SE, parallel to Flysch and limestones contact and to the direction of the strata.

The most particular feature of the Impossible Cave is the great underground karst forms development, which is better represented by a large cavern that for size is close to the one of the Grotta Gigante that is the bigger tourist cave worldwide. A peculiar aspect of the Impossible Cave is that the surface where the cave has been discovered is characterized by the absence of well developed dolines or sinkholes and the classical karst morphologies are very few or poorly developed. On the surface it is impossible to recognize the main structural features which interest the rock massif; however, hypogean voids show clearly that structural rock mass trim is the main factor which due the speleogenesis.

In the mean time the Impossible Cave differs from theoretical cave models for the Classical Karst and that's the reason of the nickname of impossible. By comparing it to the main caves in the areas it seems developed in a direction and at an altitude not related to the previously known hydrogeological evolution of this region.

Explorations of this cave have indicated that signs of the Messinian crisis are not found or limited to few caverns that in the terminal parts have sub vertical walls; different structural features drove the formation of main and secondary galleries and it probably occurred at different times.