

# Karst landforms submerge evolution?

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The analysis of the depth of minor karst landforms (karren) created by the dissolution of carbonate rocks by rainwater with the known dissolution rate, provides the answer to the question of how long these rocks have been exposed to atmospheric conditions (1, 2).

Carbonate rocks are amongst the most widespread rocks on the Earth. They cover as much as 12 % of the Earth's land surface. It is believed that most of these rocks have been formed by underwater sedimentation.

The most recent concept in karstology presented in the paper "A new view on karst genesis" (2) suggests that most karst landforms (karst depressions–sinkholes, uvalas, poljes; and corrosion karst conduits) have been formed at great depths below the sea level, more precisely below the lysocline (at the depth of approximately 4000 m), where rapid dissolution of carbonate sediments has occurred due to the enormous pressure. Water withdrawal and strong turbulent flows have resulted in the expansion of one part of karst conduits and the formation of vast caves (2). According to this concept, the only karst landforms formed by the solvent action of rainwater (enriched with CO<sub>2</sub>) are karren (Fig. 1).

The analysis of the so-called classic karst which exists in the Dinarides (41–45°N, 13–19°E, altitude between 0 and 2,694 m) has revealed that the karren depth in compact carbonate rocks ranges up to 50 cm (2). Data on the dissolution rate of rocks in the same area (3, 4) suggest that the rate of karren deepening can amount to 1 cm per 100 years. Following this data, it can be estimated that the terrains built up of carbonate rocks in the Dinarides could have been exposed to atmospheric conditions just 5,000 years ago. Considering that the average karren depth at different altitudes is rather equal, it can be concluded that

both the lowest and the highest point in this area have been exposed to atmospheric conditions for nearly the same amount of time, i.e. the water withdrawal has occurred relatively quickly.

Therefore, if macro karst depressions (sinkholes, uvalas and poljes), which can also be found at almost every altitude, have been formed at great depths below the sea level (2), it can be concluded that the entire Earth's surface was covered with water at one point. If the water withdrew just around 5,000 years ago and it occurred relatively quickly, then it is necessary to reconsider the validity of numerous scientific theories or even the validity of the theory of the evolution of living things on the Earth.

## References

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**Fig. 1.** (A) Carbonate rocks in the Boka Bay (Adriatic Sea), which are with the majority of their macro landforms formed below the sea level, are now exposed to atmospheric conditions. (B) Minor karst landforms (karren) deepened by the solvent action of atmospheric water.

