

Origin and development of inland notches in the Classical Karst (NE Adriatic)

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Karst landscapes show morphological features that are different compared to other lithological settings. Inland notches, sub-horizontal indentations extending along carbonate cliffs, are common in the Mediterranean area, in tropical, alpine and semi-arid environments, and develop because of higher erosion rates in correspondence of lithological differences.

They can be extended over maximum some hundreds of meters, with an amplitude ranging from 0.5 to 3 m. There is a lack of quantitative data on inland notches with respect to marine notches. We aim at discussing their genesis and evolution by means of morphometric, thermal lithological and micro erosion meter data collected in the Classical Karst area.

Rock type is thought to be important in the development of inland notches. Thin sections show that the central part of inland notches are made of more soluble limestones, so lowering rates are higher inside notches rather than outside. Preliminary data on mean lowering rates support the idea that small differences in limestone texture produce differences up to 5 $\mu\text{m}/\text{year}$ in lowering rates. For this purpose, their formation is usually associated with limestone beds, although the role and magnitude of karst processes is not completely known.

Thermal data show that inland notches are always warmer than the surrounding slopes, with maximum measured differences of 7.5°C. The difference in temperature is higher during the day with respect to the night mainly because of insolation.

Data support the hypothesis that inland notches are presently carved in correspondence of even very small differences in lowering rates mainly along bedding planes and, secondly, along geological weakness, such as joints or fractures, as long as lithological differences occur. We assess present understanding of the roles of climate, structural and lithological conditions in inland notches development by new data collected in the Classical Karst area.