

Selective Corrosion in Subtropical Climate Conditions (Example from Yunnan Province, China)

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One of the most characteristic Chinese stone forests and one of most remarkable in the world is undoubtedly the one situated in the direct vicinity of the city of Lunan (Yunnan Province). The stone columns there have distinct sharp peaks. The columns are generally higher than 10 m. Stone forests, in general as well as in the Lunan area, potentially develop in very thick-layered and chemically-pure limestone.

Large stone forests that were originally covered with sediment and soil, then stripped and transformed by rainwater are a characteristic form of subtropical climate conditions.

Lunan stone forest is developed in Early Permian limestone (Maokou formation). The rock is well bedded and it underwent varying tectonic pressures which caused the development of numerous fissures which form a dense network. The dip of the beds do not exceed 10° on average. It has been found that if the slope of the strata exceeds 15° , large stone columns cannot develop.

With regard to macroscopic and microscopic analyses of rock from three stone forests in the vicinity of Lunan, it was found that the type of rock was clearly reflected in the selective corrosion and erosion of carbonate, and thus in the form and morphological appearance of individual stone columns and larger stone blocks as well as in the rock surface of smaller dimensions.