



Environmental degradation of evaporite karst in Albania and Italy

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Karst areas are extremely vulnerable to a number of human activities which may produce degradation and pollution of this very fragile environment. When karst develops in evaporite rocks, characterized by greater rate of solution than the carbonates, these phenomena can be still more intense and cause negative impacts. The present contribution examines sample areas in evaporite karst of two countries in the Mediterranean basin: Albania and Italy. In Albania, evaporitic rocks cover 1,7 % of the territory, which corresponds to 7,6 % of the areal outcropping of soluble rocks in the country. The evaporite karst areas represent a peculiar and very important natural ecosystem from many points of view. Notwithstanding their naturalistic and spelological relevance, they have been the object in recent years of many events of degradation and pollution, exacerbated by the difficult social and economical situation in the Balkans. However, these areas still preserve some typical karst environment, which might be used for a sustainable development of sectors of the Albanian territory. The most important areas where evaporites are present are the zone of Korab, located in eastern Albania, at the boundary with Macedonia; the district of Dumre, in the central-southern part of the country; the area of Kavaja, few tens of kilometres south-west from Tirana. All of them are seriously threatened by a number of hazards, of both natural and anthropogenic origin. Many problems are related to agricultural practices: the use of heavy machinery, ever-increasing in recent years, results in destruction of the original karst landscapes, whilst the use of pesticides and herbicides, in addition, causes the loss of karst ecosystems of great biological relevance. This has been observed, for example, in the Dumre district, where about 80 lakes of karst origin are present in the

evaporites of Permian-Triassic age.

On the other side of the Adriatic Sea, the Calabria region of southern Italy also presents evaporite rocks ranging in age from Trias to Miocene. Triassic evaporites are limited to a sequence of about one hundred meters of thickness in the Coastal Chain. Messinian evaporites, on the other hand, extensively crop out on the Jonian side of Calabria, in the Croton Basin. The latter is one of the most interesting areas as regards evaporite karst in Italy: remarkable surface karst landforms can be recognized, mostly represented by dolines, blind valleys, closed depressions, and by deep canyons intensely affected by slope movements. Many caves are located at the bottom of the dolines, including Grave Grubbo which, with a length over 2,500 m, is one of the longest Italian caves in evaporites. The area has experienced several transformations, mainly due to agricultural activity and to scarce attention paid by the local administration to this unique landscape. The high naturalistic value of the evaporites is not exploited, and several cases of degradation of the caves have been registered, even with consequences for the quality of the water flowing in the karst systems.