



## **Geological and geomorphological conditioning in localization of apulian rupestrian settlements**

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The large number of rupestrian settlement sited in Apulia region have had the possibility to born and to grow up also in order to the special geological and geomorphological habitat of the sites where are localised. Only in few area it is possible to have a rock that is at the same time compact, impermeable, ma easy to be dug and modelled in architectural forms. Among the different Apulian sandstone only the Gravina Sandstone (Lower Pleistocene) has this sort of characters, so that the localization of large rupestrian settlement and their structure is strictly conditioned by the outcropping of this lithotype and by the geomorphological characters of the site. While some settlements appear to represent a sort of troglodytic metropolis, which extend for several kilometres and are articulated in a compact succession of overlapping levels (from 3 to 12) of numerous caves and cavities, other settlements resemble 'villages', made up of a limited number of caves located on the same subhorizontal level, sometimes only one or two caves. The first of these settlements, located in correspondence to the steep slopes of the gorges, are influenced by the fact that in Puglia these are located only there. The most simple settlements were founded on the 'lame' and on modest, subvertical fault planes and/or palaeocoastlines.

These sites since their origin they have suffered for an intrinsic fragility related to their constructive technique and to the distribution of the empty zone dug in the rock masses. In this way the actual stability condition are strongly conditioned by the continuous modification of the state of stress in the sandstone rock masses; due to complex distribution and concentration of stresses in the rock as an effect of the excavation activity and of the load transmitted by the buildings.