



## **Degree of decay and weathering mechanisms in the ancient walls of Castro (Salento, southern Italy)**

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The ancient centre of Castro is located on a hill ridge along the coastal area of Salento (southern Italy). It is known for the beautiful landscape and historic heritage date back to the Upper Palaeolithic (wall-paintings inside the coastal cave, locally called “Grotta Romanelli”). The medieval walls surrounding the ancient centre are now in a deteriorated state owing to weathering by wind action, marine aerosols and meteoric water precipitations. The historic structure is, in fact, exposed to marine environment.

Calcarene rocks, which outcrop along the coastal stretch about 5 km N of the historic centre, constitute the building stones of the ancient walls. These rocks are very soft and porous and show a reduced ability to maintain their characteristics of strength, appearance, and resistance to decay over a considerable period of time.

In order to evaluate the degree of decay of the building stones, petrophysical and mechanical analysis were performed on both fresh (from original quarry) and deteriorated specimens.

The study involves, particularly, microtextural analysis on thin sections using optical petrographic microscopy, and evaluation of index parameters by means of standard geotechnical laboratory tests. Particular attention is given to pore size distribution by mercury intrusion porosimetry, effective porosity and degree of saturation by water absorption determinations, grain size frequency distribution by traditional sieve and sedimentation analysis on disaggregated materials.