



Multianalytical approach for the characterization of stone crusts. The case study of the Consoli Palace in Gubbio, Italy.

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The complexity of degradation and decay phenomena on cultural heritage from artefacts to large scale buildings poses a challenge in the choices made by conservators and restorers for the assessment and protection for future generations of our historical legacy.

Cultural Heritage assets on exposed areas are particularly sensitive natural hazards, climate changes and anthropic pressure.

The European Commission is perceptive of the importance of preserving our heritage, having proposed 2018 has the European Year of Cultural Heritage and through financial support. The HERACLES project [1] received funding to study climate effects on historical sites and how to improve their resilience against climate events. Four test-beds are currently being monitored and among these is the Consoli Palace in Gubbio (Italy).

The present work focuses on the characterization of crusts deposited on the stone used for the construction of the Consoli Palace, collected from different areas on the exterior walls of the monument. They were characterized to determine mineralogical and chemical compositions along with morphological analysis. For that purpose, ex-situ laboratory techniques such as X-ray diffraction (XRD), X-ray fluorescence (XRF), optical microscopy (OM), Fourier transform infrared spectroscopy (FTIR), Polarized Light Microscopy (PLM), Scanning Electron Microscopy (SEM), were used to examine the stone weathering and degradation.

[1] HERACLES – HERitage Resilience Against CLimate Events on Site.

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