

EGU2020-19435

<https://doi.org/10.5194/egusphere-egu2020-19435>

EGU General Assembly 2020

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Applying InfraRed Thermography (IRT) for the protection and conservation of rupestrian CH sites affected by slope instabilities

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Rupestrian Cultural Heritage (CH) sites were among the first man-made works in the history of humanity, therefore playing a key role in building the memory and roots of human society. These sites were often carved in slopes formed by soft rocks, which due to their peculiar lithological, geotechnical and morpho-structural features are often prone to weathering, deterioration and slope instability issues. The use of advanced remote sensing (RS) techniques combined with traditional methods (e.g. field surveys, laboratory analysis), can provide fundamental data to implement a specific site-specific and inter-disciplinary approach for the sustainable protection and conservation of rupestrian CH sites. In this context Infrared Thermography (IRT), thanks to the technological development of portable high-resolution and cost-effective thermal imaging cameras, can be profitably used for the detection of CH conservation issues (namely fractures, water seepage, moisture and surface weathering). In this paper several applications of IRT in integrated methodologies for rupestrian sites conservation in mountainous regions of Georgia will be presented. The aim of this work is to evaluate the potential of IRT in the field of CH protection and conservation strategies, in order to provide a useful versatile and low-cost tool, to be profitably used in management plans of rupestrian CH characterized by similar contexts. Advantages and constraints of the adopted method will be discussed, as well as general operative recommendations and future perspectives.