

Safeguarding Cultural Heritage against Climate Change using Regional Climate Projections and Statistical Downscaling

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The protection and conservation of cultural heritage is of utmost importance for our society, not only in order to preserve the cultural identity, but also because cultural heritage is a wealth creator, bringing tourism-related business opportunities on which many communities depend. However, Europe's heritage assets are extremely exposed to climate change and natural hazards. The goal of the STORM (Safeguarding Cultural Heritage through Technical and Organisational Management) project is to provide critical decision-making tools to multiple sectors and stakeholders engaged in the protection of cultural heritage from climate change and natural hazards on the local, regional and national levels. The concept is tested through pilot site studies at five different heritage locations, all with unique risk profiles: the Diocletian Baths in Rome, Italy; the Mellor Heritage site, Manchester, UK; the Roman Ruins of Tróia, Setúbal, Portugal; the Historical Centre of Rethymno on Crete, Greece and Ephesus, Izmir, Turkey. The evaluation of historical records, real-time on-site monitoring, regional climate projections, and statistically downscaled time series for individual cultural heritage sites at risk supports the risk assessment methods on which these tools are based. In addition, climate indices are evaluated to create a complete situational picture. Here, the STORM project will be presented, focusing on the implementation of Intergovernmental Panel on Climate Change climate projections as well as meteorological observations in the risk assessment procedure, hence playing a pivotal role in cultural heritage conservation.