



An ontology for protecting Cultural Heritage against Climate Change

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Europe has a significant cultural diversity together with exceptional ancient architectures and artwork collections that attract millions of tourists every year. The UNESCO sites in Europe are almost 400, located in different Climatic European Regions. This incalculable value and global assets have to be preserved for future generations. Environmental factors, worsened by the increasing climate change impact, represent significant threats to Cultural Heritage (CH) assets as monuments, historic structures, settlements and archaeological sites.

In Europe, the huge number and diversity of CH assets, together with the different climatological sub-regions picture as well as the different adaptation policies to Climate Change adopted (or to be adopted) by the different Nations, generates a very complex scenario. The approach will benefit of a multidisciplinary methodology that will bridge the gap between the two different worlds: the CH stakeholders and the scientific/technological experts since protecting cultural heritage assets and increasing their resilience against effects caused by the climate change is a multidisciplinary task. Experts from many domains need to work together to meet their conservation goals.

No attempts have been undertaken so far to model the risks and effects of climate change with regard to CH buildings and monuments, the caused damage and potential materials for restoration. Therefore, a new Ontology has been designed integrating all necessary aspects for improving the resilience of cultural heritage on site. This ontology combines the following topics: Cultural Heritage Assets, Stakeholders and Roles, Climate and Weather Effects, Risk Management, Conservation Actions, Materials, Sensors, Models and Observations. Furthermore, the ontology can be used as a basis for new research projects, which need to tackle the problems of climate change effects and involve a set of heterogeneous sensors and processing algorithms.

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