



A risk assessment tool for the protection of cultural heritage exposed to extreme climate events.

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The risk to cultural heritage as a consequence of the impact of climate change is globally recognized, even though not exhaustively tackled with sustainable solutions and tools addressed to support policy and decision makers in the preparedness phase of risk reduction and management cycle.

This contribution aims at presenting the methodological approach applied and main results of the “Risk mapping tool for cultural heritage protection” specifically dedicated to the safeguarding of cultural heritage exposed to extreme climate changes, produced in the framework of the Interreg Central Europe STRENCH (2020 - 2022). STRENCH project is strongly based on a user-driven approach and the multidisciplinary collaboration among the scientific community, public authorities, rescue bodies and the private sector (<https://www.protecht2save-wgt.eu/>).

The presented tool provides hazard maps for Europe and in the Mediterranean Basin where cultural and natural heritage is exposed to heavy rain, flooding and prolonged drought. The tool enables assessing risk of cultural heritage assets based on:

- the computation of extreme changes of precipitation and temperature performed using climate extreme indices defined by the Expert Team on Climate Change Detection Indices (ETCCDI);
- the exploitation of the Copernicus Climate Change Service (C3S), together with Earth Observation-based data and products;
- the integration with outputs from Regional Climate Models from the Euro-CORDEX experiment under two different scenarios (RCP4.5 and RCP8.5);
- a developed methodology for identifying the main critical elements determining the vulnerability of cultural heritage;
- the ranking of the vulnerability taking into account 3 main aspects, namely the susceptibility, exposure and resilience of cultural heritage.

Preliminary results from the testing of the “risk mapping tool” at European case studies (Krems-Stein in Austria and Troja-Prague in Czech Republic) allow concluding on the feasibility and applicability of the tool presented in the perspective of optimizing preparedness strategies and mitigating the risk of cultural heritage subject to climate change related actions.

In conclusion, the STRENCH project, through the implementation of its outputs, is expected to proactively target the needs and requirements of stakeholders and policymakers responsible for disaster mitigation and safeguarding of cultural heritage assets and to foster the active involvement of citizens and local communities in the decision-making process.