



Risk assessment of Italian cultural and natural heritage in a climate change environment

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The present research illustrates the methodological approach and the results achieved so far concerning the risk assessment of cultural heritage towards climate change impact in the framework of the "Extraordinary National plan for monitoring and conservation of Italian cultural heritage". This initiative, coordinated by the Italian Ministry of Culture - General Directorate for the Safety of Cultural Heritage, aims at the safeguarding of cultural and natural heritage from diverse natural and human-made hazard, including climate-induced extreme events (heavy rain, floods and drought). The methodological approach implemented foresees:

- Identification of climate and pollution parameters with priority in causing impacts on cultural heritage.
- Selection and application of appropriate damage functions and climate extreme indices.
- Development of projections of hazard at territorial level by using regional and climate models from the EURO-CORDEX experiment.
- Hazard analysis by exploiting the Copernicus services CAMS (Atmosphere Monitoring) and C3S (Climate Change) and purposely elaborated data from air quality monitoring stations.
- Application of the methodology for vulnerability assessment of cultural and natural heritage set up in the framework of the Interreg Central EU Project STRENCH.
- Testing and validation of the methods and approaches at selected Italian case studies, among them the historic center of Florence and the terraced landscape in the Archipelago of Aeolian Islands.
- Integration of the obtained data and results in the existing territorial information systems and repositories of the Ministry (e.g. Carta del Rischio and SecurArt projects).

The final aim of the research is to support the Public Authorities at National and local level in the management of cultural heritage at risk, by also supporting them in putting forward recommendations for the integration of measures dedicated of the protection of cultural heritage in the national plans of disaster risk reduction and climate change mitigation.