EVALUATION OF CLIMATE CHANGE IMPACT ON PANAMANIAN UNESCO SITES AS CONTRIBUTION TO PREVENTIVE CONSERVATION

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Panama, the narrowest strip of land of Central America, hosts two sites inscribed on the World Heritage List: the Archaeological site of Panama Viejo (XVI cent.) and the Fortresses of Portobelo and San Lorenzo (XVII-XVIII cent.). In order to support the conservation and valorisation of these places, in 2014 a collaboration work was started between the Patronage of Panama Viejo, the Patronage of Portobelo and San Lorenzo, the Institute of Atmospheric Sciences and Climate of the Italian National Research Council (ISAC-CNR) and the Department of Physics and Earth Sciences of the University of Ferrara. As a first step, the study was devoted to the characterization and the evaluation of the state of conservation of the building materials, obtained by mineralogical, petrographic, physical and chemical analyses (PLM, XRD, SEMEDX, XRF, MIP and IC). Successively, in order to determine the environmental context, a selection of monitoring stations, near the sites of interest, recording climate parameters (near surface air temperature, relative humidity and rainfall amount), have been selected among the network of the Authority Panama Canal. Moreover, the same parameters were collected from ARPEGE and EC-Earth climate models, both historical and scenario simulations, in order to utilize them for future damage predictions. Indeed, utilizing environmental data and applying specific damage functions it is possible to assess the deterioration phenomena occurring on heritage materials, for instance surface recession, biomass accumulation and transition of salts, as demonstrated within the 6 FP EC Noah’s Ark Project. The projections of possible climate change impacts on the Panamanian heritage, for the near to the far future (2011-2100), compared to the recent past (1985-2010) will be presented and discussed as main results of this research work.

Keywords: Risk assessment, Cultural Heritage, Damage function

References:


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