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Application of the European standard EN 15757:2010 in Small and Medium-Sized Museums: Use of a New Methodology for Complex Microclimates

For the proper conservation of cultural heritage, it is necessary to monitor and control the microclimate conditions where artifacts are located. The European standard EN 15757:2010 establishes a methodology to analyze seasonal patterns and short-term relative humidity (RH) and temperature (T) fluctuations. This standard is designed to analyze data from a single data-logger. However, spaces with complex microclimates require to be studied from numerous data-loggers. This is the reality of most museums, historic buildings, and archaeological sites.

This research addresses this problem by means of a case study of the Archaeological Museum of l'Almoina (Valencia), with HVAC system (heating, ventilation, and air conditioning) and where 27 autonomous data-loggers were installed at different points. Using the data collected in this museum for 16 months, the standard is evaluated and a methodology for using EN 15757:2010 with multiple data-loggers in complex spaces is presented. This methodology allows the identification of the areas and periods of the year with the highest number of potentially more dangerous short-term fluctuations, simplifies the interpretation of the standard and is adjustable to the conservation needs of each building. Based on the analysis of the microclimates and the application of the proposed methodology, some corrective measures are proposed.

Keywords

cultural heritage; microclimate monitoring; preventive conservation; EN 15757:2010; multivariate statistics

Classification

Mainly application

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