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“A warning from Mars”: effect of microclimate changes at the Specola Museum of Palermo

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The Specola Museum is located at the Palermo Astronomical Observatory and preserves most of its material heritage. It is part of the Museum System of the University of Palermo (SiMuA) and its management and conservation are entrusted to the INAF - Astronomical Observatory of Palermo. Among the historical instruments on display, there is a 19th-century painted wooden globe reproducing the surface of Mars. It has been on display in a showcase, inside the Merz Telescope Hall, for about 20 years without undergoing any type of intervention or evident deterioration sign. From 2021, in less than two years, damages of its pictorial layers occurred at a progressive rate. The European Standard EN 15757 explains that hygroscopic materials are highly vulnerable to microclimate changes. The wooden globe was in good conditions after two decades of permanence at the museum, but the recent control and management of the indoor climate was not compatible with the past climate history of the globe to which it has adapted.

The speed of the degradation made it evident that the microclimatic conditions of the room changed abruptly. The warning deduced from the Mars globe deterioration was hence easy to decode: there is something wrong with this climate!

It is well known that museum microclimate plays a key role in the conservation of the objects on display. It may trigger or aggravate degradation processes of the materials constituting the object exhibited and affect their “life expectancy”. Moreover, each object responds peculiarly to environment variability, depending on its composition and conservation history. When an artifact is composed of different materials, unexpected synergistic effects may develop. Finding appropriate values range of temperature, relative humidity and illuminance and managing them to guarantee the conservation of the entire collection, and at the same time improving the thermal comfort for people working there, is a difficult task. The issue becomes even more challenging in buildings not originally designed for conservation purposes, as the Specola Museum, located in the ancient observatory rooms, built in 1790 on the top of the 12nd-century Royal Palace.

An accurate restoration has been made, and conservation measures have been adopted, to stop the serious deteriorating processes affecting the model of Mars but the risk of further deterioration phenomena involving other objects is expected to increase substantially if no actions are taken.

This contribution intends to present the results of the preliminary study concerning the thermo-hygrometric records taken in the Merz Telescope Hall over the last two years and propose specific actions to improve its microclimate conditions.

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