



Plinius Conference Abstracts

Vol. 17, Plinius17-44, 2022, updated on 07 Jul 2022

<https://doi.org/10.5194/egusphere-plinius17-44>

17th Plinius Conference on Mediterranean Risks

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Safeguarding of the Villa Romana del Casale UNESCO site from severe weather events: the case study of Apollo medicane occurred in October 2021

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In response to damage resulting from the natural phenomena of aging and decay but also from the occurrence of disasters (earthquakes, floods, fires, etc.), the conservation strategies of cultural heritage (whether it is movable or immovable) inevitably require a methodological approach aimed at planned conservation and preparedness for the risk event of the cultural site. Between 2007 and 2012, in this context, the intervention of recovery and conservation of the archaeological site of Villa Romana del Casale in Piazza Armerina (Sicily, Italy), UNESCO World Heritage Site (since 1997), was realized.

The project, directed by the Centro Regionale per la Progettazione e il Restauro, Regione Siciliana, was aimed not only at performing the conservative intervention of the monumental site and its decorative apparatus, but also at drawing up a protocol for preventive maintenance. This protocol concerned the new covering system of the archaeological site, its protection and fruition, as well as the hydrogeological asset of the territory on which it rises. In this frame, since the early Middle Ages the fonts document serious floods that interested the area on which the Villa del Casale is located. These floods inevitably interacted with its conservation history, even influencing its existence. The damages caused by the flood of October 1991 are documented, when the archaeological area was already excavated thanks to the archaeological campaign directed by the archaeologist Gino Vinicio Gentili. These excavations were themselves influenced by the flood of 1951 that covered the area still partially explored. In this study, after considering the damage caused by the previous weather event of October 1991 on the UNESCO site, the occurrence of October 2021 and the construction's positive response to the stress caused by the meteorological phenomenon are analysed.

The investigation was carried out using ground-based and satellite-based measurements, to provide a detailed overview of the extreme event that occurred, to identify the pressures that insisted on the studied site. The analysis highlights the effectiveness of recovery and conservation project carried out on the monumental complex and completed in 2012.

Keywords: UNESCO site, Archaeological area, Meteorology, Extreme weathers, Flooding, Safeguarding

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How to cite: Prestileo, F., Mascitelli, A., Meli, G., Petracca, M., Giorgi, C., Melfi, D., Puca, S., and Dietrich, S.: Safeguarding of the Villa Romana del Casale UNESCO site from severe weather events: the case study of Apollo medicane occurred in October 2021, 17th Plinius Conference on Mediterranean Risks, Frascati, Rome, Italy, 18–21 Oct 2022, Plinius17-44, <https://doi.org/10.5194/egusphere-plinius17-44>, 2022.

