

## **Petra monuments and salt damage: challenges and prospective**

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### **Abstract**

The crystallisation of salts in porous building materials is a principle agent of decay in historic monuments and archaeological sites, including the World Heritage Site of Petra, Jordan. Nonetheless, the mechanism of salt damage is still inadequately understood. This research was undertaken in order to examine the role of wind speed in the salt damage process in general, and in the world heritage site of Petra in particular. The paper evaluates the role of wind speed in salt crystallisation and distribution. The research present a detailed monitoring of the microclimate conditions and its role in the salt distribution at selected monuments in Petra, in order to understand the extent and mechanism of salt damage at these monuments. The research developed a salt simulation test that would include the effects of wind.

The results have shown that wind speed has a significant impact on salt crystallisation and distribution in porous materials, and thus on decay rates, and that fluctuating wind speed enhances salt damage more than steady speeds.

The conception of conserving and managing an archaeological site is usually challenging. These issues become more challenging when dealing with archaeological sites in the scale of the world heritage site of Petra, Jordan. This paper will discuss some of the main challenges and limitations in a typical conservation work, while evaluating the salt damage problem in the site of Petra.

*Bait Al Anbat*