

## **P-Wave Velocities for Organizing the Surface Protection of Stones. Examples from Greece**

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The P-wave velocities can be used for the estimation of the depth (D) of weathered or artificially consolidated layers as well as the depth of cracks at the surface of stones.

This technique can be applied in the protection of both geological and cultural heritage. The depth of weathering at a stone surface can be evaluated using the indirect ultrasonic velocity technique. In this case the transmitter is placed on a suitable point of the surface and the receiver is placed on the same surface at successive positions along a specific line. The transit time is plotted in relation to the distance between the centres of the transducers. A change of slope in the plot could indicate that the pulse velocity near the surface is much lower than it is deeper down in the rock. This layer of inferior quality could arise as a result of weathering.

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The above mentioned technique could not only be performed for investigating the damage depth at the surface of stones but also for evaluating the effectiveness of this method for estimating the consolidation depth at the stones, after treatment. For this purpose, the above mentioned methodology was performed on the walls of the Medieval City of Rhode Island (Greece) as well as in Delos island providing data for the effectiveness of the consolidation treatment on the wall