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Salt Weathering on Buildings and Stone Sculptures

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Formation of a patina by means of wetting-drying cycles

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ABSTRACT

This communication presents the results of a weathering test based on wetting-drying cycles on a French limestone: "Tuffeau". Fifty wetting-drying cycles carried out during three years were applied to a side of a cylindrical sample. The movements of water induce porosity and mineralogical modifications due to the phenomena of dissolution, transport and recrystallization of endogenous salts as calcite. The decrease in the imbibition kinetics confirms the deterioration of the tested stone sample. Furthermore, the imbibition test allows show the presence of two different zones of deterioration, notably a patina on the side less porous than in the rest of the sample.