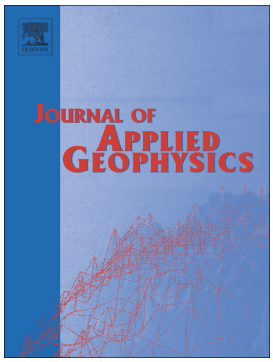

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AN OVERVIEW OF NON-DESTRUCTIVE AND MINIMALLY INVASIVE TECHNIQUES FOR MOISTURE CONTROL IN THE CULTURAL HERITAGE

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ABSTRACT

This article describes the use of non- or minimally destructive methods to study damp in San Juan Bautista Church at Talamanca de Jarama in the Spanish province of Madrid. The combination of ground penetrating radar (GPR), electrical resistivity tomography (ERT) and wireless sensor network (WSN) techniques provided sub-surface information, while data on wall surfaces were collected with contact hygrometry and infrared thermography. The respective findings and ranges of observation were inter-related to identify the decay associated with the damp and determine the advantages and drawbacks of each instrumental method.

1. INTRODUCTION

Monitoring involves observing one or several parameters to detect possible anomalies in need of ongoing surveillance [1]. With the development of innovative detection techniques, its use has extended to a growing number of fields. Monitoring systems often comprise several types of sensors [2, 3] and instrumentation based on electrical resistivity [4, 5], wave propagation [6-8] or infrared radiation [9, 10], among others.