DEMONITOR PROJECT: ADVANCING LANDSCAPE MONITORING AND CONSERVATION THROUGH INTEGRATED GEOPHYSICAL TECHNIQUES

Devil's town monitoring

The DEMONITOR project represents a groundbreaking initiative aimed at monitoring and actively shaping the evolving landscape of the "Devils' town" site, funded by the Science Fund of the Republic of Serbia under the PRIZMA call (2023-2026)

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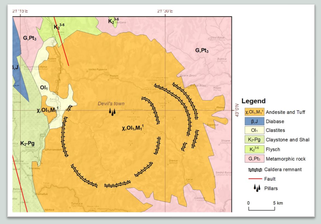
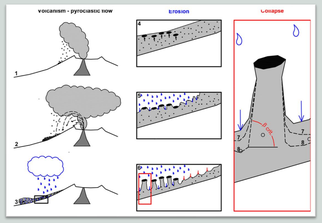
INTRODUCTION

Unlike traditional monitoring efforts, which often serve as passive observers of landscape changes, DEMONITOR takes a proactive approach by employing predictive modeling and cutting-edge scientific tools, with a significant emphasis on geophysical techniques. As the first holistic endeavor of its kind, DEMONITOR utilizes state-of-the-art non-invasive techniques, including geophysical methods, to assess the site's future evolution and develop strategies for its protection.

SITE DESCRIPTION

Devils' town is situated near Prolom Spa in southern Serbia and this site showcases a stunning interplay of erosional forces and volcanic rock formations, resulting in approximately 200 tall rock pillars colloquially referred to as "the Devils". These pillars, towering up to 15 meters in height and 6 meters in diameter, are a testament to years of weathering and erosion processes.





The Devils' town site is just one component of the larger Lece volcanic complex, spanning approximately 700 km^2 in southern Serbia. This expansive area is characterized by andesitic rock and pyroclastic remnants, remnants of a once-active volcanic complex dating back to the upper Ol - Pl epoch, approximately 30 to 3 million years ago.

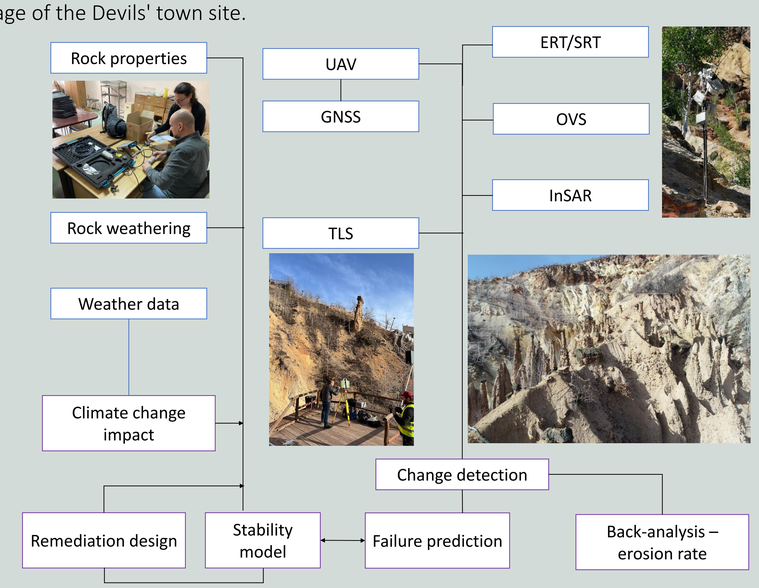
Unlike other badlands formations, the pillars at the Devils' town are capped by large volcanic boulders, formed through a remarkable process involving tephra deposition with right density and water content and had just right velocity and size of the boulders, that the inverse gradation could take place and erosion.

In recent years, observations during tourism activities have revealed changes in the pillars, including erosion, collapsing, sinking, and emerging formations. With the looming threat of climate change exacerbating these erosional effects, there is a growing need to comprehend the site's future evolution.

This distinctive geological feature has sparked scientific interest in understanding the site's evolution and longevity.
While the Devils' town is currently protected as a natural monument, efforts to promote it to UNESCO natural heritage status have been limited to the tentative list since 2002.

METHODOLOGY

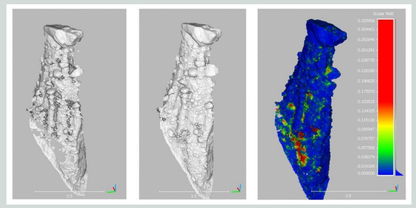
This multidisciplinary methodology ensures a comprehensive and robust approach to data acquisition and analysis, contributing to the overall objectives of the DEMONITOR project in safeguarding the unique natural heritage of the Devils' town site.



The project's emphasis on open data, education outreach, and regional cooperation underscores its broader significance in fostering scientific literacy, promoting international dialogue, and protecting natural and cultural heritage for future generations

EXPECTED RESULTS AND IMPACT

The DEMONITOR project represents a pioneering effort in assessing stability and predicting behavior at the Devils' town site. Through innovative geophysical techniques and meticulous survey planning, the project aims to provide unprecedented insights into the condition of the site's pillars and surrounding terrain. By advancing surveying knowledge and experience in challenging terrain conditions and contributing valuable data on tephra deposits, the project will significantly expand the understanding of geological phenomena in similar environments.



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