Investigating the Quarries as Natural and Cultural Geological Heritages: Case of Mardin Ancient Quarry

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Abstract (300 word limit)

Statement of the Problem: The Mardin stone, which has been used in the construction of cultural heritage buildings in Turkey's Mardin province, is a Micritic limestone and has been used since the Artukid period (12th to 14th centuries AD). The main quarry where this stone is extracted, known locally as the "Mardin Caves," is currently an unused area with the potential for geotourism. This land was designated as a protected Cultural Heritage site of 1st Degree Archaeological Significance. However, in order to determine how the quarry can be used for tourism purposes, it is necessary to identify constraints on the choice of solutions in spatial arrangements. The aim of this study is to investigate how the ancient limestone quarry in Mardin, which is a natural and cultural geological heritage, can be used for tourism and to develop recommendations. Methodology & Theoretical Orientation: To explore how Mardin's ancient quarries can be used for tourism, field studies, surface geology studies, geophysical measurements, and the evaluation of orthophotos obtained through laser scanning were conducted, leading to the development of recommendations. Findings: The research results indicate that the area where the quarries are located has become a natural habitat for numerous valuable flora and fauna species after excavation. Interesting morphological forms have also emerged after the processing of rocks in the quarry sites. The rock has shown favorable bearing capacity, and karstic voids have been observed in the caves, making it essential to implement various spatial arrangements for safe tourism use. Conclusion & Significance: It is believed that by making improvements in line with the research results, the old quarry sites can not only revitalize the region but also contribute to broader social benefits, including supporting the United Nations National Sustainable Development Goals and promoting tourism in the area.

Image

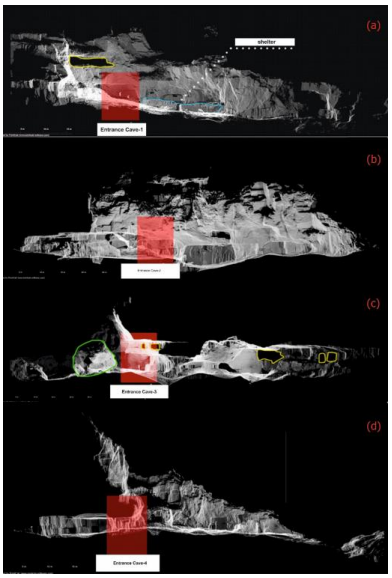


Figure 1: Orthophotos: (a) section A-A (1st cave); (b) section C-C (2nd cave); (c) section D-D (3rd cave); and (c) section G-G (4th cave).

Recent Publications (minimum 5)

1. Karataş, L, Alptekin, A and Yakar, M. (2023). Investigating the limestone quarries as geoheritage sites: Case of Mardin ancient quarry. Open Geosciences, 15(1): 20220473.
2. Karataş, L., Alptekin, A. & Yakar, M. (2023). Material analysis for restoration application: a case study of the world's first university Mor Yakup Church in Nusaybin, Mardin. Heritage Science, 11: 88.
3. Karataş, L. (2023). Yersel lazer tarama yöntemi ve ortofotoların kullanımı ile kültür varlıklarının cephelerindeki malzeme bozulmalarının dokümantasyonu: Mardin Mungan Konağı örneği. Geomatik, 8(2):152-162.
4. Karataş, L. & Menteşe, D. H. (2022). Dara Antik Kenti (Anastasiopolis) Nekropol Alanının Malzeme Sorunlarının Yersel Lazer Tarama Yönteminden Elde Edilen Ortofotolar Yardımıyla Belgelenmesi. Türkiye Fotogrametri Dergisi, 4(2): 41-50.
5. Karataş, L. (2023). Investigating the historical building materials with spectroscopic and geophysical methods: A case study of Mardin Castle. Turkish Journal of Engineering, 7 (3): 266-278.

Photograph



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Dr. Lale Karataş is an academician serving as the Head of Department of Architecture and Urban Planning Department at Mardin Artuklu University. She embarked on her educational journey by obtaining a bachelor's degree in Architecture from Uludağ University in Bursa. Later, she continued her education at the same university and completed her master's and doctoral degrees in the field of Architecture. Her doctoral thesis focused on the examination of damage assessment in stone material restoration in buildings using virtual reality and lidar scanning. Dr. Lale Karataş specializes in stone materials, geotourism, geological heritages, seismic movements in historic structures, photogrammetry, UAVs (Unmanned Aerial Vehicles), laser scanning, damage assessment, and restoration.

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