Aspects of geoarchaeology

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Geoarchaeology is an extensive subject mostly applying geological techniques and archives to solve problems in archaeology. Geology and archaeology share a range of similarities such as a reliance on fieldwork and the need to use observations to reconstruct the past, without reliance on experiments. Because of these similarities, geoarchaeology can help both archaeologists and geologist in unexpected ways. Two archives are presented to show how archaeological information can benefit geologists and how geological analytical techniques can benefit archaeology.

A Roman dining hall in Ephesos, Turkey (Passchier et al. 2019) was decorated with thin plates of marble mylonite, all cut from the same block. Detailed analyses of the folds in the plates in a 3D reconstruction allowed imaging of sheath folds in the original marble block, and a calculation of the amount of material loss during cutting and polishing of the plates. The sequence of the decorated plates on the wall could be reconstructed, and with this information, the decoration strategy of the dining hall could be determined.

Roman water supply systems belong to the most impressive remains from antiquity and contain an archive in the form of carbonate deposits (Sürmelihindi & Passchier 2023). This carbonate archive is a rich source of information on the environment, and for archaeology. Examples are given how this news archive can be used to reconstruct and date earthquake damage from a double aqueduct in Ephesos; to reconstruct the workings and maintenance of Roman watermills in the pre-industrial mill complex of Barbegal, France; and to determine the cleaning strategy of the Roman aqueduct of Cahors and its socio-economic implications

References

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