



Geographic provenance of carbonate tesserae and other artifacts from Northern Greece

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For the characterization and the identification of the origin of tesserae from several archaeological sites from N. Greece, samples were analyzed using several techniques: stable isotopes of carbonates (^{13}C , ^{18}O), XRD analysis and optical microscopy, from which information can be obtained on the origin and texture of the material used for the production of the artifacts.

The analyzed samples are Hellenistic to Byzantine objects. XRD analysis was applied to identify the mineralogical structure of each material. Based on that, the isotopic measurements (^{13}C , ^{18}O) were used to determine the origin of the carbonate material. In order to distinguish the material of the samples in more detail, the maximum grain size of each was determined by optical microscopy.

XRD analysis indicated that most samples are carbonate rocks, mainly consisted of calcite, with dolomite and quartz participation in some cases. Also, other petrographic identities were identified, which seem to be mainly metamorphic rocks. The final results of the study indicate the origin of the material, which show different quarrying localities as well as different petrographic unities of origin. Mapping the rock transfers between the extraction site and the monument establishment, it is possible to spot trading routes and relationships of the settlements in the area.