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G. Grupe, G.C. McGlynn (Eds.)

Isotopic Landscapes in Bioarchaeology

- ▶ Summarizes the outcome of interdisciplinary workshops based on a network of different sciences such as physical anthropology, archaeology, zooarchaeology, geology, mineralogy, and computer sciences with regard to the research potential in future bioarchaeological research
- ▶ New methods of “fuzzy data mining” by the computer sciences are addressed for the first time
- ▶ Based on the outcomes of international workshops sponsored by the German Science Foundation and the Centre of Advanced Studies at the Ludwig-Maximilian- University Munich

This work takes a critical look at the current concept of isotopic landscapes (“isoscapes”) in bioarchaeology and its application in future research. It specifically addresses the research potential of cremated finds, a somewhat neglected bioarchaeological substrate, resulting primarily from the inherent osteological challenges and complex mineralogy associated with it. In addition, for the first time data mining methods are applied. The chapters are the outcome of an international workshop sponsored by the German Science Foundation and the Centre of Advanced Studies at the Ludwig-Maximilian-University in Munich. Isotopic landscapes are indispensable tracers for the monitoring of the flow of matter through geo/ecological systems since they comprise existing temporally and spatially defined stable isotopic patterns found in geological and ecological samples. Analyses of stable isotopes of the elements nitrogen, carbon, oxygen, strontium, and lead are routinely utilized in bioarchaeology to reconstruct biodiversity, palaeodiet, palaeoecology, palaeoclimate, migration and trade. The interpretive power of stable isotopic ratios depends not only on firm, testable hypotheses, but most importantly on the cooperative networking of scientists from both natural and social sciences. Application of multi-isotopic tracers generates isotopic patterns with multiple dimensions, which accurately characterize a find, but can only be interpreted by use of modern data mining methods.



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