O-1096

Prehistoric Land Use and Settlement Dynamics in Mining Districts of the Eastern Alps

Klaus Oeggl
Department of Botany, University of Innsbruck , Innsbruck, Austria

Abstract

Prehistoric peopling of the Eastern Alps occurred in several waves according to palynological data. The first occurred in the 4th millennium BC and seems to be correlated to hydrological changes in the southern Alpine foreland. In the 3rd and 2nd millennium BC follow further settlement phases. Thereby the possibility of the procurement of raw materials appears to be relevant. The research centre "HiMAT - The History of Mining Activities in the Tyrol and adjacent areas: Impact on Environment and Human Societies" at Innsbruck University deals with these issues in a multidisciplinary approach. A crucial problem in the evaluation of the pollen record is the segregation of agricultural and mining activities. Here we present a multi-proxy approach by pollen, geochemistry and historical data to separate these two components. A calibration data set of pollen and geochemical analyses in a mediaeval and Early Modern mining district reveals the vegetation development in connection with mining, which we validate by historical data on the demography of miners and silver production volumes in the mining district. Thereby a spread of the pioneer trees *Pinus* and *Larix* is detected which might be connected either with selective clearances for the gain of pastureland or with a natural reforestation on scree. A correlation of the pollen values of these pioneer taxa as well as those of Poaceae, settlement and cultural indicators with historical data of silver production volumes as a proxy for former mining activities reveals that a secondary succession on the waste dumps is more likely than the expansion of pastureland. Furthermore, this multi-proxy approach with modifications in geochemical analysis of heavy metals is applied for other prominent mining districts in the Eastern Alps. Moreover, we correlate the vegetation and land use changes in the districs´ surroundings with climate proxies. Settlement/farming activities appear overall climate driven, albeit changes in mining activities seem to be governed by economic regularities too.