Mapping possible migration routes of early modern humans through an integrative spatial analysis of archaeological and palaeoecological data

*近藤 康久[1]
*Yasuhisa Kondo[1]

1. 総合地球環境学研究所
1. Research Institute for Humanity and Nature

This lightning talk presents my research experience to map possible migration routes of early modern human population by a combination of ecological niche analysis and least-cost path analysis using archaeological and palaeoecological data (Kondo et al. 2018 https://doi.org/10.1007/978-981-10-6826-3_13). In this research, niche probability was predicted by MaxEnt, an ecological niche model based on the maximum entropy theory. Location of known archaeological sites and environmental factors derived from palaeoterrain and palaeoclimate models, were input to the model to calculate the niche probability at each spatial pixel and weights of the environmental factors. The inverse of probability score was then used as an index of relative dispersal rate to accumulate the travel cost from a given origin. Based on this cumulative cost surface, least-cost paths from the origin to given destinations were visualised. This method was applied to the Initial Upper Palaeolithic population group (probably of modern humans) in Eurasia. The model identified three migration routes from the Levant to (1) Central Europe via Anatolia and Eastern Europe, (2) the Russian steppe via Caucasus Mountains, and (3) the Altai region via the southern coastal Iran and Afghanistan. This research involved archaeologists, palaeoclimatologists, geochronologists, and geographic information scientists, and successfully facilitated an interdisciplinary debate on the dispersal of early modern humans.

キーワード：生態ニッチモデル、最小コスト経路、初期現生人類の移住
Keywords: Ecological niche modelling, Lest-cost paths, Early modern human migration