

EGU22-6021

<https://doi.org/10.5194/egusphere-egu22-6021>

EGU General Assembly 2022

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Unraveling archaeological settlement, landscape, and resource use patterns with machine learning in Kurdistan (Iraq)

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The traditional view on Mesopotamian resources strategies is understood as “resource hunting” in which Mesopotamian empires would have spread to neighbouring regions (Zagros, Taurus, Levant...) to monopolize their resources. Indeed, Mesopotamia lacks some resources/raw materials such as copper, iron, wood, obsidian, and others. Our *RessourceCultures* approach, developed in SFB 1070, aims to define resources in a wider spectrum, to propose new interpretations on cultures development in this region. By investigating new patterns rules of resources appropriation and uses in peripheral areas, we hope to bring interesting new results. Our survey covered an area of 4.400 km² from the western foothills of the Zagros mountains to the eastern riverbank of the Tigris.

To unravel the patterns that define a *ResourceCulture* we combine both archaeological and geoarchaeological data into a machine learning approach. Many features (topography, water, soil type, resources availability, climate...) influence the founding and location of settlements in different ways and degrees of importance. The trend of these influences can be analyzed through machine learning models in predictive archaeology. Letting the machine run predictive models and underline the relationship between each feature and settlement dynamic will potentially help us to better understand how resources were used in a cultural and economic context through time and space.

Our poster will present the first ideas derived from the machine learning approach: Is there any trends appearing and what can we say from them? Can we redefine the *ResourceCulture* in Northern Mesopotamia through these new interpretations?

