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How to determine the anthropogenic signal at less settled spatially bounded archaeological sites?

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Our research on spatially bounded Iron Age enclosure of the Viereckschanze type in southern Bohemia made it possible to distinguish the anthropogenic influence of the Iron Age from modern human activities. We collected over 456 samples from 200 cores to a depth of up to one metre. Samples were measured using pXRF to determine the content of the following elements: Al, Si, P, K, Ca, Ti, Mn, Fe, Cu, Zn, As, Rb, Sr, Zr, Pb, and LE – ‘light elements’). Subsequent isometric log-transformation of ppm elemental contents and PCA allowed to distinguish the prehistoric anthropogenic influence from the current modern one. The result of the analysis is as follows: 1) the P signal typical for archaeological settlements was found mainly outside of the enclosure; 2) the conventional anthropogenic signal from the inside of the enclosure was only represented by Mn; 3) other elements related to possible anthropogenic activities were revealed only after applying statistical analysis (As, Pb, Zn, Cu); 4) the unusual manifestation of Si and Ti was connected to the archaeological contexts. The combination of these results (Cu, Zn, Pb) and magnetic measurements revealed places of metallurgical activity inside Viereckschanze. It is certain that the site was not only a place of residential activity, but also of production activity. Viereckschanze was only occupied for a short period of time.

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