

PleisoHERD: Linking intra-tooth strontium profiles to bioavailable strontium isoscapes to study seasonal mobility and reconstruct palaeomigrations of Rangifer

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Reconstructing the movement palaeoecology of ungulates is essential to understanding the hunting strategies and landscape use of past human groups. Strontium (⁸⁷Sr/⁸⁶Sr) isotopes can be used to assess the geographical origin of archaeological and palaeontological remains. By targeting tissues that develop incrementally such as tooth enamel, ⁸⁷Sr/⁸⁶Sr data provide the opportunity to study migratory behaviour and determine potential seasonal ranges of past ungulates. Using data from modern migratory caribou herds, we developed an approach that combines isotope analysis, isoscape mapping and animal movement modelling to link caribou intra-tooth ⁸⁷Sr/⁸⁶Sr profiles to ⁸⁷Sr/⁸⁶Sr isoscapes and to assess the distribution and the seasonal movements of the caribou. Applying our model to Palaeolithic archaeological reindeer samples from France, complemented by sulphur ($\delta^{34}\text{S}$) isotope analyses from bone collagen, we are now exploring variability in the migratory behaviour of past reindeer populations ranging in Europe during the Late Pleistocene. Our interdisciplinary approach will allow us to better understand the movement ecology of past ungulates and, consequently, how past humans used ancient landscapes, but will also permit new insights into long term changes in the migratory behaviour of *Rangifer* in relation to environmental and climatic changes.