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Title: Characterization and patina formation of flint used on prehistoric sites in NW Belgium

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Abstract:

This study aims at analyzing the mineralogical and chemical characteristics of raw flint material, used for the production of prehistoric stone tools in NW Belgium. Material used in this study includes flint from outcrops in the Mons Basin and flint found on the beaches of the Western Scheldt. Due to the formation process, raw flint material is defined by a wide variety of internal structures, chemical variations and impurities. Moreover, weathering processes can alter the flint material and cause additional changes making the study of this material complex. Weathering of flint is mostly expressed as patination which is linked to the geological and depositional context. Therefore it is important to understand how the flint characteristics influence their weathering behavior.

The first goal of this study is to investigate the characteristics of unaltered flint using a combination of traditional techniques such as microscopic analysis, XRF and SEM-EDX. Secondly, structural and chemical differences between unaltered flint, cortex (rim on flint nodules found in chalk beds) and patina will be investigated using the above mentioned methods together with non-destructive high-resolution X-ray computed tomography (micro-CT). The possibilities of micro-CT, providing 3D information of internal structures of flint, will be explored since this technique is not frequently used in studies analyzing flint material. In particular, both natural and laboratory-induced patinas will be analyzed using micro-CT. White patinas are reproduced by experiments with alkaline solutions in relatively short time. This way, the patination process and the relation between patina formation and flint characteristics can be studied. The results of these investigations will later be considered in the analysis of archaeological artefacts from Mesolithic-Neolithic sites in the Scheldt valley, NW Belgium.

Presentation preference: oral