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Study of flint properties for artefacts raw material sources detection in the future

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The natural diversity of flint and chert is extremely high and their changes in hypergenesis zone are relevant, as well the processes speed is high, which makes these natural silicates problematic in modern scientific studies. This is also evidenced by the numerous attempts to determine precise the flint chemical and physical properties that still are recognized only as indicative. At the same time, flint is one of the few natural raw materials, what people have used for making tools through thousands of years. Despite the many advances in ancient material culture studies, the raw material in relation to the development of these cultures can be localised sufficiently accurate only in some cases, but others have to be limited to the assumption that the raw material was obtained through an exchange.
In the study was assessed the natural diversity of the flint in northern Europe and its characteristic properties. It was found that only a part of them are associated with secondary changes and relate mainly to the low purity of the flint, as well as to an external layer formation, less – to the individual layers of the nodules. Those cannot always be macroscopically evaluated, particularly in circumstances when the samples cover patina and the objects may be investigated only by non-destructive methods.
The studies in ultraviolet light partially solved before mentioned. The internal structure of the objects is recognizable, and at the same time are evident also various inclusions, squares and diffuse, hidden cracks and other disparities, which often cover most of the research objects. This explains why so far determined flint properties are so very different and enable to mark the specific locations for the further composition research.
These characteristic locations were studied under UV light and it is optimal apply excitation filters 340-380nm, 450-490nm and 515-560nm with corresponding emission zones from 425nm, 515nm and 590nm. The results show that it is possible to distinguish characteristics and their sets, which inhere to the samples of one origin. The obtained results can be represented as images that further may be processed with the appropriate software. Our experience indicates that after such treatment, using the RGB colour distribution system, the data can be statistically analysed and allow to separate the artefacts by their distinct origin, which would be studied detail in the future.