



Application of luminescence dating of archaeological sequences – examples from Europe and North Africa

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Archaeological sequences require accurate and precise numerical chronologies. Mostly, these sediments are stratigraphically complex and challenging to date. Post-depositional mixing, contamination from a collapsing cave roof, microdosimetry or insufficient bleaching prior to burial may influence the luminescence dating results. Careful sample selection and a good stratigraphic knowledge is crucial for a successful investigation. Numerous studies concentrate on quartz luminescence dating, but recent investigations show the advantage of multi-method optically stimulated luminescence dating approaches to achieve more comprehensive chronologies. For a Moroccan cave site we have compared quartz and potassium feldspar single grain and multiple grain dating for an internal cross-check. Good accordance was observed between quartz and feldspar as well as radiocarbon ages for a sample that represents the stratigraphical unit of the Middle to Upper Palaeolithic transition. Saturation of the quartz luminescence signal was the main limitation when dating various sites in Spain and we have concentrated on potassium feldspar minerals instead. We have applied micromorphology to better understand site formation processes and we used radiocarbon dating, for a chronological crosscheck.