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# **Pedo-sedimentary dynamics of the *Grenzbank* zone in the Sangiran dome (Java central, Indonesia):**

## **the witness of a complex transitional period in the hominid bearing series**

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### **Abstract**

The thick sedimentary series of the Sangiran dome are known to reflect the geological evolution of Central Java since the beginning of the Quaternary until the Lower to Middle Pleistocene boundary. The site is furthermore famous for numerous discoveries of *Homo erectus*, the oldest ones dated at c. 1.5 M.a.

An orogenic phase took place during the late Lower Pleistocene, resulting into the shaping of hill ranges in the Northern and Southern borders of the Solo basin, from which emerge the Sangiran *boutonnière*. It resulted into synorogenic deposits which abruptly interrupt the clayey sedimentation in the depression. These often conglomeratic deposits are cemented by a calcareous matrix (either contemporaneous of the sedimentation or post-depositional in a phreatic context). They are likely to have formed during a quite long time, but have often been used to mark a stratigraphic boundary (*Grenzbank* in German).

This study combines field survey and micromorphological approach in order to precise the pedo-sedimentary dynamics of the *Grenzbank* unit. In a palaeogeographical perspective, we sample 25 sections, which yielded 95 micromorphological samples.

We define three lithostratigraphic microfacies with various geographical distributions. Facies 1 constitutes an independent unit present in the NW part of the dome. Important quantities of mud aggregates and carbonate rhizolithes are also described. It reflects the development of alluvial fans coming from the north during a tectonic episode, associated with strong erosion of pedological covers. Two other facies are defined as the basal part of the overlying Kabuh volcano-alluvial series, and reflect complex changes of river pathways over Central Java. They are more developed in the southern part, and indicate the transport of both siliceous raw material (quartzite, gneiss, chalcedony, jasper, silicified limestone) and small sized artifacts (whose type matches the so called 'Sangiran flakes') that are the oldest discovered in Sangiran.