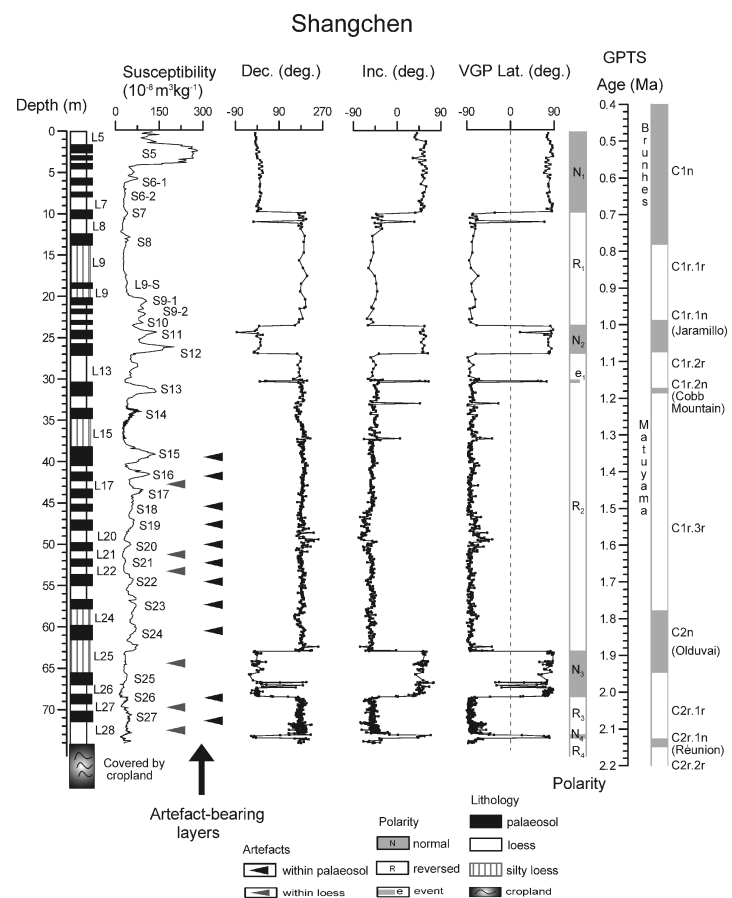


# A newly discovered Shangchen palaeolithic locality indicates Hominin occupation of the Chinese Loess Plateau since about 2.12 million years ago

With the support by the Chinese Academy of Sciences and National Natural Science Foundation of China, the research team directed by Prof. Zhu ZhaoYu (朱照宇) at the Guangzhou Institute of Geochemistry/State Key Laboratory of Loess and Quaternary Geology of CAS, Prof. Huang WeiWen (黄慰文) at the IVPP of CAS and Prof. Robin Dennell at the British Academy, recently reported a new palaeolithic locality that indicates the Hominin occupation of the Chinese Loess Plateau since about 2.12 million years ago, which was published in *Nature* (2018, 559: 608–612).

The new locality is located at Shangchen of Lantian county in Shaanxi Province in the southern part of the Chinese Loess Plateau. The loess-palaeosol stratigraphy and the palaeomagnetic stratigraphy have been established by using thousands of data from a range of methods including the key layers comparison, sedimentology, mineralogy, geochemistry, paleomagnetism and rock magnetic methods. The stone artefacts (including cores, flakes, scrapers, points, hammerstones and picks) of Shangchen locality, which suggest evidence of early tools, were found in a successive loess-palaeosol section, and 17 stone artefact horizons of early Pleistocene strata (1.26–2.12 Ma) are used to establish the chronological framework of the loess-palaeosol-palaeolithic culture sequence during the early Pleistocene.

Stone artefacts were found predominantly in 11 palaeosol layers, which developed in a warm and wet climate. The 17 loess-palaeosol layers with artefacts span about 0.85 million years which is very rare worldwide, and indicate repeated—but not necessarily continuous—hominin occupation of the Chinese Loess Plateau between 1.26 and 2.12 Ma. Most importantly, the oldest artefact age of approximately 2.12 Ma at Shangchen implies that hominins had left Africa before the date suggested by the earliest evidence from Dmanisi (about 1.85 Ma). This makes it necessary to reconsider the timing of initial dispersal of early hominins in the Old World, and this breakthrough expands a new direction of research on the internationally leading Chinese loess-palaeosol sequence, and prompts reconsideration on the pattern of early human's origin, migration and dispersal.



**Figure** Summary of the loess—palaeosol section with Magnetic susceptibility variations, palaeomagnetic dating data and artefact sequence in the Shangchen Palaeolithic locality, Lantian county.