

## Rock magnetic studies on the hominoid-bearing sediments at Zhupeng, Yuanmou Basin, southwestern China and its paleoclimatic significance

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**Abstract:** It has been proposed that paleoclimatic changes and tectonic events strongly affect hominoid evolution. The Zhupeng section at Yuanmou Basin, southwestern China, with the hominoid-bearing fluvial-lacustrine sediments, is an ideal natural laboratory to test this hypothesis. This study provided an integrated magnetic study, including low-frequency susceptibility, the anisotropy of magnetic susceptibility, temperature-dependent susceptibility, hysteresis loops, isothermal remanent magnetization, and anhysteretic remanent magnetization, on samples from the Baozidongqing section at Zhupeng. Results show that the dominant magnetic carrier is hematite, with minor amount of magnetite. Both the composition and concentration of magnetic minerals strongly correlate with the lithostratigraphy. At least eight short-term events defined by higher concentrations of magnetite were identified. These short events reflect that the subtropical dry-hot climate is similar to today's climate. Basing on the lithostratigraphic and rock magnetic results, we suggest that Yuanmou Basin was in a steady deposition environment from about 11 to 7 Ma, which is characterized by alternating of long-term torrid-humid climate and short-term dry-hot climate. Our study provides invaluable environment information for understanding the climate shift and the relationship between paleoenvironment and hominoid evolution in southwestern China during late Miocene.

**Keywords:** Yuanmou Basin, hominoid, late Miocene, rock magnetism, paleoclimate.

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