

## Microbial tetraether biomarker records in the Lower Cretaceous paleosols in Sichuan Basin, China

***Hu, Jianfang<sup>1,\*</sup>, Liao, W.<sup>1</sup>, Huang, Chengmin<sup>2</sup>***

1) Guangzhou Institute of Geochemistry, Guangzhou, China, \*E-mail: hujf@gig.ac.cn

2) Guangzhou Institute of Geochemistry, Guangzhou, China

The ubiquitous occurrence of microbial tetraethers-glycerol dialkyl glycerol tetraethers (GDGTs) in soils and their ability to record the temperature and environmental variations offer the promise of reconstructing continental paleotemperature and paleoenvironment from the paleosol sequences. In this study, the GDGT-derived proxies are investigated for the paleosol sequences taken from the Sichuan Basin. The studied sequence consists of non-marine synorogenic deposits, including lacustrine, alluvial and fluvial sandstone, siltstone, shale and mudstone (LI et al., 2016). The strata were mainly distributed in the northwestern Sichuan Basin and divided into Gudian, Qiqusi, Bailong and Cangxi Formation. The ages were assigned to Lower Cretaceous (Berriasian to Early Hauterivian) according to the paleomagnetic and biostratigraphic data.

The branched GDGTs (brGDGTs) including 6-methyl brGDGTs were identified in the paleosols. The total concentrations of brGDGTs are 0.022–3.215 ng/g. Temperature record reconstructed using the modified MAT<sub>mr</sub> (DE JONGE et al., 2014) display that pronounced phases of climatic cooling existed during the Late Berriasian, Early Valanginian and Early Hauterivian. The continental temperature varied between 8.9 °C and 21.0 °C, indicating a temperate climate prevailed in the Sichuan Basin during the the Lower Cretaceous. The reconstructed temperate is roughly coupled with the paleoatmospheric CO<sub>2</sub> concentration (LI et al., 2016).

DE JONGE, C. et al., 2014. *Geochim. Cosmochim. Acta*, **141**, 97–112.

LI, J. et al., 2016. *Cretaceous Res.*, **62**, 154–171.