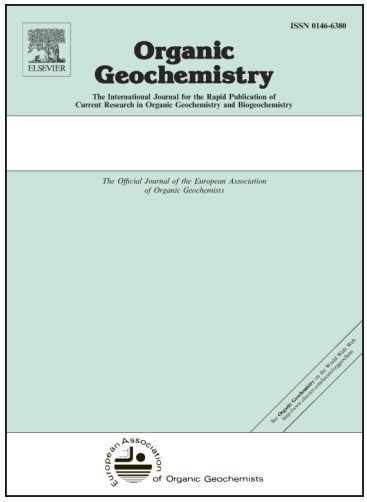


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# Variations in 6-methyl branched glycerol dialkyl glycerol tetraethers in Lantian loess-paleosol sequence and effect on paleotemperature reconstruction

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ABSTRACT

The distribution of branched glycerol dialkyl glycerol tetraethers (brGDGTs) has been increasingly used as a proxy in paleoclimate studies of marine, lacustrine and loess environments. A paleothermometer was subsequently quantified using a combination of the methylation and cyclization index of branched tetraethers (MBT-CBT) on the basis that MBT was related to mean annual air temperature and to a lesser extent soil pH, whereas CBT correlated only with soil pH. As newly described 6-methyl brGDGTs seemed to introduce a dependence on soil pH of this temperature proxy, we investigated the effect of the 6-methyl brGDGTs on an existing paleotemperature reconstruction. We describe the evolution in temperature and pH recorded in the