

n-Alkan-2-ones of lacustrine sediments and its climate significance in Linxia Basin, NE Tibetan Plateau, NW China

YONGLI WANG^{1,2}, XIAOMING FANG², YUANMAO LI¹, DAXIANG HE¹, YINGQIN WU¹, HUI YANG¹ AND YOUXIAO WANG¹

¹Key Laboratory of Petroleum Resources Research, Institute of Geology and Geophysics, Chinese Academy of Sciences, Lanzhou 730000, China

²Center of Basin-Mountain System and Environment, Institute of Tibetan Plateau Research, Chinese Academy of Sciences, Beijing 100085, China
(correspondence:Fangxm@itpcas.ac.cn)

Abundant n-alkan-2-ones were detected in all samples and the distribution ranging was from C17 to C31 in the lacustrine sediments of Maogou section in the Linxia Basin, NE Tibetan Plateau, NW China. The maxima peaks of C27, C29 and C31 were especially obvious and the odd carbon number predominance was remarkable from C25 to C31. The different maxima peaks of n-alkan-2-one from relative higher to lower carbon-numbered compounds were changed obviously and six climate stages could be identified in entire depositional section. Abundant isoprene-ketones (i.e., isomeric C18 ketones, iKC18) were detected in all samples. The relative abundance of isoprene-ketones for MG5 and MG8 to MG11 were higher, while that for MG1 to MG4 and MG6 to MG7 were lower. The isoprene-ketone can be regarded as recorder of temperature changes of the sedimentary environment. The higher abundance of isoprene-ketones indicates the low temperature of the sedimentary environment. The greatest change showed for MG7 to MG8 when the relative abundance of isoprene-ketones increased sharply, indicating the climate turned to cold condition at ~8Ma suddenly. Another obvious change in the relative abundance of isoprene-ketones was higher in MG5 indicating a cold condition at ~13Ma.

Based on the distribution characteristics of these biomarkers, we suggest that they record information related to climate change.

Supported by grants No. KZCX2-YW-Q05-05, XDA05120204, KZCX2-EW -104(2), NSFC No.40672123 and 2005CB422001.

Water hydrogen and oxygen isotope composition characterization in the tea ditch of Anxian, China

WANG YONGLI, NI SHIJUN AND ZHANG CHENGJIANG

¹Department of Geochemistry, Chengdu University of Technology, Sichuan Province, (wangyl@cdut.edu.cn, nsjl@cdut.edu.cn, zcj@cdut.edu.cn)

This paper studies isotopic composition in the Chayuan Gou of Anxian area. The results showed that the water body δD is between -68 ‰ ~ -54 ‰, $\delta^{18}O$ in between -11 ‰ ~ -8 ‰; Sample put above global rainfall line and distribute in two different area(ChuBa Gou water area, Chayuan Gou water area). these show the groundwater and surface water originated in the meteoric waters of supply; according to $\delta^{18}O$ isotopic composition water Supplies elevation are about 1400 ~ 1500m.

ChuBa Gou water system and Chayuan Gou water system has different hydrogen and oxygen isotopic composition, the front is enrich lighter isotopes and the later is enrich heavy isotopes. S15 isotopic composition of spring water showed that the groundwater come from different two type groundwater mixing, the mixing ratio of 3:2.