High carbon isotopes of Neoproterozoic carbonates from the Ailiankate Group, Tarim Craton, China

H. S. TANG[1*], Y. J. CHEN[2] AND X. QU[3]

[1]State Key Laboratory of Ore Deposit Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences, 99 West Lincheng Road, Guiyang 550008, China. (tanghaoshu@163.com)

[2]Key Laboratory of Crustal and Orogenic Evolution, Peking University, 5 Yiheyuan Road, Beijing 100871, China. (yjchen@pku.edu.cn)

[3]Xinjiang Bureau of Geology and Mineral Resources, 2 West Kelamayi Road, Urumqi, Xinjiang 830000, China (564714899@qq.com)

The two biggest $\delta^{13}C_{carb}$ positive excursions in the earth's history happened in 2.2 – 2.06Ga and 800 – 550Ma. They are associated with Snowball Earth and Great Oxidation Event and breakup of Supercontinent (KenorLand/ Rodinia). The Ailiankate Group in the Tiekelike Block, southwestern margin of the Tarim Craton, China, had been deemed as a Paleoproterozoic stratum. In our study, 20 samples of carbonates (>420m strata) from the Ailiankate Group in Pishan area, Xinjiang, yield $\delta^{13}C_{carb}$ values ranging -1.18 – 6.21‰ (V-PDB), and $\delta^{18}O$ values ranging 17.04 – 20.39 ‰ (V-SMOW). It shows that a clear positive $\delta^{13}C_{carb}$ excursion characterize the Great Oxidation Events. Combined new obtained detrital zircon LA-ICP-MS U-Pb age (<750Ma), the obvious positive $\delta^{13}C_{carb}$ excursions of the Ailiankate Group validate its age ranging in the Neoproterozoic bracket of ca. 750 – 550 Ga.