Late Triassic volcanic activities at the northwest margin of Junggar Basin, Xinjiang, China

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The studied volcanic rocks are located at the southeast of Jeminay town, on the northwest margin of Junggar Basin and the south Altay Mountain, Xinjiang, China. Based on the attitude of the volcanic flows, we divide them into two groups. The slight synclinal dipping and nearly vertical fractures at one of the sampling location for the upper unit may represent a near venting area.

The mineral chemistry, whole rock major, trace, and Rb-Sr, Sm-Nd isotope compositions have been analyzed. Both groups are calc-alkaline series with matalunimous to slightly peraluminous characters. The discrimination diagrams show that both groups possess 'volcanic arc' characteristics. The zircon U-Pb age for the lower group is around 320 Ma. The Rb-Sr isochron age for lower series is 319 Ma. The zircon U-Pb age for the upper group is 226 Ma. This is the first late Triassic volcanic activity reported in this area.

By late Carboniferous time, the Altay region was under convergent action with the relative shearing movement of Baltica with respect to Siberia (Sengor *et al*., 1993 [1]). The volcanic variation pattern is basaltic to intermediate to felsic from south to north in Jeminay region (Xinjiang Geological Institute, 1983 [2]); this pattern might be the result of this late Carboniferous tectonic collage. The late Triassic volcanic eruption observed from this study might be the result of compression resulting from the Cimmeride collision [1].

[1] Sengor *et al*. (1993) *Nature* **364**, 299-307. [2]Xinjiang Geological Institute (1983) *Report of regional geological survey L-45-II (1:200,000)* 252 p.

Li/Ca ratios of ostracod shells as a paleoenvironmental indicator at Lake Qinghai, NE Tibetan Plateau

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During the processes of carbonate precipitation, Lithium (Li) is commonly incorporated into calcite crystals. Previous investigation has demonstrated that Li is preferentially incorporated into the 0001 face in calcite, which is exothermic in calcite compared with other faces, and is likely to be favoured at lower temperatures. Therefore, Li is easily incorporated into calcite crystals at lower temperature with carbonate precipitation, and Li/Ca ratios of carbonate are potentially capable of providing reliable paleotemperature records.

With the purpose to explore the potential of Li/Ca ratios of ostracod shells as an indicator in lacustrine sediments and to avoid the interspecies effects, here, we analysed for the first time Li/Ca ratios of monospecific ostracod shells *Eucypris inflate* in the lacustrine sediment core from Lake Qinghai, NE Tibetan Plateau. The results showed that Li/Ca ratios of ostracod shells is a reliable paleotemperature proxy, which is testified by comparisons of variations of Li/Ca ratios and temperature inferred from meteorologic records and tree ring widths in Dulan and Qilianshan. Li/Ca ratios of ostracod shells negatively correlate with temperature. High temperature corresponds with low Li/Ca ratios, and *vice versa*, suggesting that Li/Ca ratios of ostracod shells is an effective proxy to deduce paleotemperature variations. Our ongoing in-depth investigation is using Li/Ca ratios of carbonates in more lakes to further reveal its paleienvironmental implications.