Geophysical Research Abstracts
Vol. 15, EGU2013-7465, 2013
EGU General Assembly 2013

The Paleozoic evolution of the Qimantagh magmatic arcs: similarities to Altaids

Wei Li (1,2), Franz Neubaucer (1), Yongjiang Liu (2), Johann Genser (1), Shoumai Ren (3), Guoqing Han (2), Chenyue Liang (1,2)

(1) University of Salzburg, Department of Geography and Geology, Salzburg, Austria (liwe@stud.sbg.ac.at), (2) College of Earth Sciences, Jilin University, Jianshe Str. 2199, Changchun, 130061, China, (3) Strategic Research Center of Oil & Gas Resources, MLR, Funei Str. 88, Xicheng District, Beijing, 100034, China

The Qimantagh area of Western China bears a similar tectonic history as the Altaids although the region is separated by the Late Archean-Early Proterozoic Alxa-North China craton. New results of U-Pb zircon dating of granitoid samples collected from Qimantagh yield three major age groups of granitoid magma formation between 513–460, 455–400 and 311–250 Ma, indicating that the Qimantagh basement mainly underwent Paleozoic tectonic-magmatic events. From north to south within the Qimantagh area (in present-day coordinates, not considering possible rotation), the magmatism becomes younger, suggesting that either (1) the magmatic arc was accreted in turn from north to south or (2) alternatively the subduction retreated to the south. Based on our new zircon ages from granitoids, combined with previous geochemical and geochronological data, we suggest that three stages of tectonic evolution took place in the Qimantagh area: (1) northward subduction of the Qimantagh Ocean (513–460 Ma); (2) collision-orogeny process (455–400 Ma); (3) in the Permian (311–250 Ma), due to the northward subduction of the Paleo-Tethyan Ocean, the future Qimantagh area was characterized by an active continental margin setting likely associated with post-collisional extension.

These three stages of magmatic arcs are temporally quite similar to magmatic arcs found in eastern and central Altaids. We discuss, therefore, the possible origin of both magmatic arc belts from the same ocean and later, Permian (?) strike-slip duplication by transpressive or pure strike-slip motion.