



Geochemical and zircon U-Pb and Lu-Hf isotopic constraints on the origin of supracrustal rocks from the mid-Qilian terrane: A comparison between supracrustal rocks on the two sides of the eastern segment of the Altyn Tagh Fault

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The supracrustal rocks along the south and north sides of the eastern segment of the Altyn Tagh Fault (ATF) are similar in petrology and mineralogy, but they are ascribed to the Beidahe Group and Dunhuang Group, respectively. Detrital zircon U-Pb ages indicate that the protolith sediments of the Beidahe metasedimentary rocks were mainly sourced from a provenance dominated by magmatic rocks in ages of 2.85-2.55 Ga, 1.70-1.55 Ga and 1.42-1.03 Ga. This sedimentary sequence was deposited no earlier than 1.03 Ga as passive continental margin deposits, and the Tarim Craton most likely provide the majority of source materials. Amphibolites from the Beidahe Group have a crystallization age of 1.61 Ga with an intra-oceanic BABBs affinity. The metasedimentary rocks from the Beidahe and Dunhuang Groups have same source but different depositional ages, and the amphibolites have same crystallization age but different tectonic settings.