SHRIMP U-Pb in zircon geochronology of the metapelites from Shibuqi High Himalayan Series，Southwestern Tibet，China

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The Shibuqi region lies in southwestern Tibet (roughly 31°N, 79°E) near the Zhada county. Shibuqi is composed of pelite schists and gneisses, calcareous schists, sillimanite-, kayanite- bearing gneisses, quartzites, with minor leucosome and amphibolites. There are not the isotope ages of the metapelites from High Himalayan Series in the Southwestern Tibet. The study of the zircon cathodoluminescence images from the metamorphic sedimentary rock show that there are complex textures. The dating results indicate the 2.5Ga event, Grenville and Pan-African thermal events record in the zircon. A Pan-African periods deposition age (ca. 0.59Ga) is inferred from the age of the metaquartzites.

U-Pb ages of detrital zircons show different peak (2.5Ga, 1.1Ga, and 0.59Ga), suggesting that the detrital archive records the geological event history of its source region. These 2.5Ga, 1.1Ga and 0.59Ga zircon grains with sharp oscillatory zoning, uniform and concordant U-Pb systems, igneous Th-U ratios, are interpreted as primary magmatic zircons. A few zircons show complex zircon growth characteristics.

During the Pan-African periods, the northern part of India was affected by a Pan-African event, Numerous granitic intrusions dated at around 0.55Ga are attributed to this event. The Pan-African event is marked by an unconformity between Ordovician continental conglometrates and the underlying Cambrian marine sediments. These evidences suggests the presence of the Pan-African orogenic event in the Himalaya. It is tempting to correlate the early Palaeozoic thermal event with a late extensional stage of the long-lasting Pan-African orogenic events which ended with the formation of the Gondwana supercontinent.

The protolith age of the High Himalayan metamorphic rocks is generally regarded to be Precambrian to early Paleozoic. It seems plausible that the High Himalayan metamorphic rocks represent a minimum depositional rage at ~0.59a. Our data show strong similarities to previously published spectra for the Greater Himalayan zone, Lesser Himalayan zone and Tethyan Himalayan zone. Detrital zircon spectra from the High Himalayan range as young as 0.59Ga, So the High Himalaya and Tethyan Himalaya were deposited contemporaneously.

Acknowledgment: This work is supported by NSF of China (No. 40573039)