



Title of Abstract

Cooling and exhumation of the Trans-Himalayan Ladakh Batholith as constrained by Fission Track ap
zircon ages

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Text of Abstract

Low temperature exhumation history of the Trans-Himalayan Ladakh Batholith has been deciphered from Fission Track (FT) dating of apatite and zircon separates. 30 FT apatite samples from the Ladakh Batholith provide an excellent constraint on its exhumation at low temperature $\sim 110^{\circ}\text{C}$. The oldest apatite ages have been encountered from the highest uplifted parts of the batholith and are 23.1 ± 1.1 Ma from Khar (5440m), and 25.4 ± 2.6 Ma from Chang La (5301m), while the youngest ages are 11.8 ± 1.1 Ma (4032m) and 9.2 ± 0.9 Ma (3732m), respectively. Apatite ages from Lyoma-Hanle section are tightly clustered vary from 17.8 to 12.0 Ma. Elevation profiles of these two sections yield exhumation rates of 0.1 mm/a for the Khar La and Chang La sections between 25 Ma and 9 Ma. In addition, three cogenetic zircons yielded FT ages of 41.4 ± 2.3 Ma, 43.8 ± 3.4 Ma and 31.7 ± 2.7 Ma, indicating a younging of the FT age from west to the east. The FT data for the batholith indicates a slow cooling and exhumation history, as inferred from elevation vs. age apatite plots, which is also confirmed from wide distribution of track lengths of confined tracks.

Keywords: Exhumation, Ladakh Batholith, Fission Track Dating.