AOGS 2005

New $^{40}Ar/^{39}Ar$ Ages for the West Coast Deccan Trap Flood Basalts and Related Dikes in India

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We report 12 new $^{40}Ar/^{39}Ar$ apparent ages from four basalts and four dikes collected along the western margin of the Deccan Traps in India. These are the initial results in a comprehensive study to reevaluate the overall time interval for the eruption of the Deccan flows. Because obtaining accurate argon geochronology of basalts is notoriously difficult, our experimental approach includes the analyses of multiple minerals as well as groundmass concentrates (G.C.) for all samples.

$^{40}Ar/^{39}Ar$ ages for four basalt samples display an apparent age range from 65.9 to 64.5 Ma, and exemplify the potential for inaccuracy. The lowermost flow collected from the Khandala Fm yields an age of 65.7 Ma. Two samples from the next stratigraphically higher unit, the Ambenali Fm, yield apparent ages of 64.5 and 65.9 Ma, and are in reverse age sequence. A sample of the Mahabaleshwar Fm yields an age of 65.1 Ma. Analyses of mineral phases from these samples as well as additional flows in the sequence is underway.

Dikes that crosscut the Deccan flows along the west coast of India range in composition from lamprophyre to dolerite. Phlogopite, biotite, hornblende, and a G.C. from these samples yield ages between 77.5 to 66.1 Ma. The older ages are from a lamprophyre dyke near Murud (see Subbarao and others, this meeting). These older $^{40}Ar/^{39}Ar$ ages are clearly older than the flows and suggest that the minerals are xenocrystic. Further work on the Deccan flows and associated dikes and small intrusions is currently underway in an attempt to resolve the apparent age inconsistencies.