COMMENT

Geochemistry and Petrogenesis of basic dykes of Agali area, Palghat District, Kerala

(A comment on the paper by S. Sinha-Roy and T. Radhakrishna, published in the Journal of the Geological Society of India, Vol. 24, No. 12, 1983, pp. 628-638).

Just because the basic dykes of Agali area are geochemically akin to one of the magmatic phases of Deccan Volcanics, the time of emplacement need not necessarily be related to Late Cretaceous-Early Tertiary. All the exercises attempted with the geochemical data only point out the similarity perhaps of the mantle source characteristics.

The plagioclases of the Deccan basalts and their intrusive phases are more calcic and are of the high T-type (Viswanathan *et al* 1971, p 1117). The micropegmatite component reported in the Agali dykes is rare or absent in the Deccan intrusives.

In fact, the Agali dykes are very similar to the well-known Pre-Kadapa Newer Dolerites such as the dyke swarm intersecting the Peninsular genesis of the Chittor-Vellore areas and hence, in my opinion, cannot be related to Deccan activity.

Reference

VISWANATHAN, S., KRISHNAMOORTHI, N. and SHANMUGAM, K., (1971) Petrography and Petrochemistry of the Basalt sequences around Mahape Mumbra and Kalyan, Maharashtra, India. *Bull. Volcan.*, v. 35-4, pp,. 1110-1128.

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AUTHOR'S REPLY

We thank Dr. Viswanathan for his comments. The geochemical data of the Agali basic dykes, as observed by Viswanathan, are essentially used to understand the mantle source characteristics and to compare them to the magmatic products of different tectonic settings.

The geochemical data of the Agali basic dykes along with that of Deccan basalts and the dykes of Chittor-Vellore area are given in Table I for comparison. The Chittor-Vellore dyke rocks are essentially enriched in SiO_2 and K_2O and are depleted in TiO_2, V, Ni and Co contents as compared to Agali dykes. However, the Agali dykes are closer to Deccan tholeiites in these elements and other geochemical characters (see Table I and original paper). A careful examination of the chemical data of the basic dykes (taking into account the variations of different elements against fractionation index) in these different areas suggests that crystal fractionation has played a minor role in their formation. The chemical differences between the Agali dykes and the Chittor-Vellore dykes cannot, therefore, be attributed to crystal fractionation. On the other hand, they reflect variations in primary magma compositions. In the Agali basic dykes, plagioclase composition varies from An_{53-57} in the phenocrysts and An_{60-67} in the groundmass. These values fall well within the ranges reported for the plagioclases in Deccan basalts (An_{53-74} in