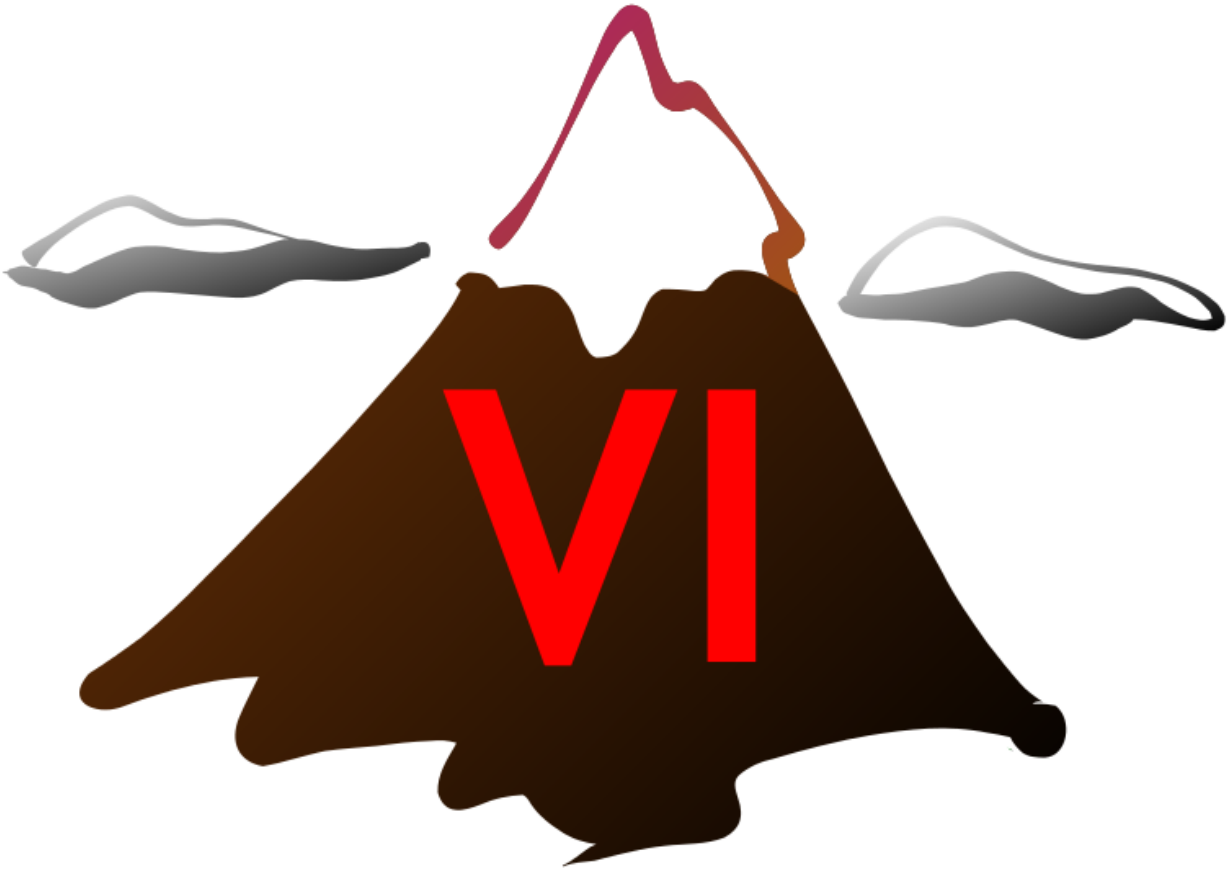

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Boletim de Resumos

Sr, Nd, and Pb isotope compositions of Early Cretaceous dykes from the Serra do Mar Swarm (SP-RJ-Brazil)

Karine Zuccolan Carvas[1], Leila Soares Marques[2], Marly Babinski[3]

[1]IAG, Universidade de São Paulo, e-mail: karine.carvas@usp.br;
[2]IAG, Universidade de São Paulo, e-mail: leila.marques@usp.br;
[3]IGc, Universidade de São Paulo, e-mail: babinski@usp.br

The Paraná Magmatic Province (PMP) comprises extensive tholeiitic volcanism associated to significant intrusive igneous activity over more than 1,200,000 km² of the South-American platform. Nevertheless, there is still no consensus about the mantle sources involved in the magmatism and the sequence of tectonic events related to the western Gondwana paleocontinent rupture.

There are three major dyke swarms related to the PMP: Ponta Grossa, Florianópolis, and Serra do Mar. The later is the focus of this work; it is located on the coast of São Paulo and Rio de Janeiro states, trending NE-SW, with thickness bodies varying from few to dozens of meters. The average $^{40}Ar/^{39}Ar$ ages range from 131 to 134 Ma, though there are younger (120-125 Ma) and older (150 Ma) occurrences. We have determined the Sr, Nd and Pb isotope compositions (by thermoionic mass spectrometry) and the Pb concentrations (by isotopic dilution method) of 9 selected samples of the Serra do Mar Dyke Swarm; all of them were analyzed for major, minor and trace elements by X-ray fluorescence and neutron activation analysis. All investigated samples have high titanium contents ($TiO_2 > 2.5\%$) and are chemically represented by tholeiitic andesi-basalts (N=4), lati-andesites (N=3) and tholeiitic andesites (N=2).

The Sr, Nd and Pb isotope analysis were carried out at CPGeo-USP. The initial (back to 133 Ma) isotope ratios varied between 0.705660 and 0.706739 for $^{87}Sr/^{86}Sr_i$; 0.512192 and 0.512368 for $^{143}Nd/^{144}Nd_i$; 17.589 and 18.182 for $^{206}Pb/^{204}Pb_i$; 15.514 and 15.575 for $^{207}Pb/^{204}Pb_i$; and 38.097 and 38.409 for $^{208}Pb/^{204}Pb_i$. The Pb concentrations ranged between 4.16 and 7.8 µg/g. The analytical blanks during the analyses were 141 pg for Sr, 53 pg for Nd and 94 pg for Pb.

In order to investigate the risk of Pb contamination during sample preparation, one sample was submitted to different procedures, including different washing of rock fragments before powdering and the use of agate and tungsten carbide as grinding materials. The results do not show statistical differences for both concentrations and isotope ratios, indicating that for relatively high Pb concentration, such as these used in this study ([Pb] = 7.8 µg/g), contamination during the preparation step is negligible.

In comparison to the volcanic rocks of PMP, two dykes present the same geochemical and isotope signatures of the Pitanga flows. The others are geochemically similar to the Urubici lavas, although most of them tend to show more radiogenic compositions ($^{87}Sr/^{86}Sr_i$: 0.705957 - 0.706739; $^{206}Pb/^{204}Pb_i$: 17.589 - 18.182; $^{207}Pb/^{204}Pb_i$: 15.514 - 15.575; $^{208}Pb/^{204}Pb_i$: 38.097 - 38.409; $^{143}Nd/^{144}Nd_i$: 0.512192 - 0.512321), which may be related to crustal contamination processes and/or the involvement of different mantle sources in their genesis.

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Key words: Paraná Magmatic Province; Serra do Mar dyke swarm; Pb isotope analyses.