

Early Cretaceous sills from Morungava region: evidences of plume-related magmas in the Paraná Magmatic Province, Brazil

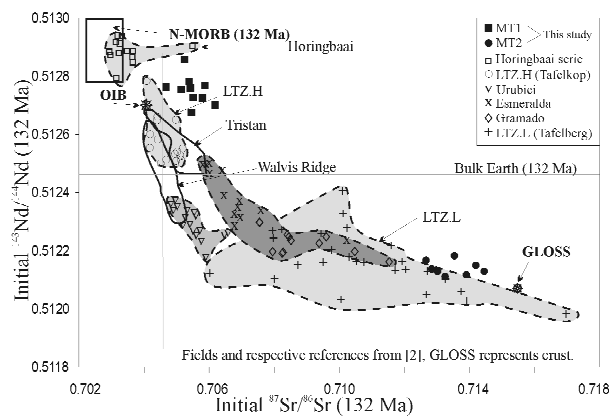
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The source of the Paraná-Etendeka Magmatic Province (PEMP) has long been subject of debate, mainly regarding the role of the long-lived Tristan da Cunha (TC) hotspot and the amount of SCLM fusion involved. The lack of primary magma compositions has always been a problem and only few examples of primitive magmas occur in the southern part of the Etendeka sub-province in NW Namibia.

Here we report the existence of two types of underground sills (Morungava type 1 and 2 - MT1, MT2) intruded in the southern part of the Paraná basin. The MT1 sills are ol-rich gabbroic rocks while MT2 are aphyric cpx-pl rocks. Both chemically correspond broadly to the low-Ti lavas, nevertheless, MT1 has a distinctive higher Ti/Zr ratio and further geochemical characteristics that resemble closely the rare examples of OIB-derived magmas from the Etendeka, the LTZ.H series [2]. On the other hand, MT2 has lower Ti/Zr and are similar to the widespread low-Ti Gramado type (and also LTZ.L series) lavas. Nd and Sr isotopes data show further evidences of the OIB-derived origin of the MT1 and reinforce the similarities of the MT1 and MT2 sills with the LTZ.H and Gramado/LTZ.L series, respectively.

The recognition of plume-derived magmas similar to the scarce LTZ.H series for the first time in the southern Paraná sub-province encourages further investigations in this region, an area with many intrusions poorly studied.



References

- [1] Ewart A., Milner S.C., Armstrong R.A. and Duncan (1998) *J. Petrol.* **39**, 191-225.
- [2] Ewart A., Marsh J.S., Milner S.C., Duncan A.R., Kamber B.S and Armstrong R.A. (2004) *J. Petrol.* **45**, 59-105.