

Early Devonian Malvinokaffric Realm's northern boundary modified by newly discovered brachiopods from the Parecis Basin

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The northern biogeographic boundary between the earlier Devonian Malvinokaffric Realm and the adjacent Eastern Americas Realm has been placed between the Paraná Basin and the Amazon Basin, permitting it to pass through the Parnaíba Basin. Discovery of typical Early Devonian Malvinokaffric Realm brachiopods within the Parecis Basin north of the Paraná Basin moves the boundary significantly to the north. J.H.G.M. and L.P.S. collected the fossils at Morro Vermelho (13°39.457'S, 53°52.455'W) and Morro do Índio (13°58.522'S, 54°00.008'W) localities, north of Paranatinga town, Mato Grosso State. Devonian Morro Vermelho shales rest on low-grade Precambrian metamorphics. The weathered shales are unsuitable for palynology, but resemble the basal Devonian shales of Chapada dos Guimarães, Mato Grosso (northwestern Paraná Basin), where miospores indicate a latest Lochkovian - early Pragian age. The fossils and lithology suggest that the two regions were continuous in the Devonian. Inarticulate brachiopods, identified by Rowell, include *Orbiculoidea falklandensis*, *Orbiculoidea* sp. cf. *O. collis*, and *Lingula* sp. cf. *L. lepta*. The articulate brachiopods, chonetids identified by Racheboeuf, include *Australostrophia mesembria* and *Pleurochonetes sorucoi*. Non-chonetids, identified by Boucot, are *Australospirifer* sp., *Australocoelia palmata*, *Pleurothyrella* sp., *Plicoplasia* sp., *Derbyina* sp., and an unidentified orthotetacid. The Morro Vermelho trilobite fauna includes Malvinokaffric calmonioid genera like *Calmonia*? and *Metacryphyaeus*. Among the brachiopods *Orbiculoidea falklandensis*, *Australostrophia mesembria*, *Australocoelia palmata*, and *Pleurothyrella* are also typical Malvinokaffric Realm taxa. Eastern Americas Realm brachiopods are absent. Ecologically the fauna is best placed near the boundary between Benthic Assemblages 2 and 3, i.e., shallow subtidal, photic zone.