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Geochemical and detrital zircon geochronological investigation of the metavolcanosedimentary Araticum complex, sergipano fold belt: Implications for the evolution of the Borborema Province, NE Brazil

Haroldo Monteiro Lima, Márcio Martins Pimentel, Reinhardt A. Fuck, Lauro Cézar Montefalco de Lira Santos, Elton Luiz Dantas

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2 OF THE METAVOLCANOSEDIMENTARY ARATICUM COMPLEX, SERGIPANO
3 FOLD BELT: IMPLICATIONS FOR THE EVOLUTION OF THE BORBOREMA
4 PROVINCE, NE BRAZIL

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6 Haroldo Monteiro Lima¹; Márcio Martins Pimentel²; Reinhardt A. Fuck³; Lauro César
7 Montefalco de Lira Santos⁴; Elton Luiz Dantas⁵;

8
9 ^{1,2,3,5} Programa de Pós-graduação em Geologia, Universidade de Brasília, Campus
10 Universitário Darcy Ribeiro ICC, Asa Norte, CEP 70919-970, Brasília, DF, Brasil, e-mail:
11 haroldogeologo@gmail.com. ⁴Universidade Federal de Pernambuco, Departamento de
12 Geologia, Av. da Arquitetura, Cidade Universitária, Recife, PE, Brasil, e-mail:
13 lauromontefalco@gmail.com

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15 ABSTRACT

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17 The Borborema Province is an important Precambrian orogenic system in Northeastern
18 Brazil. It was formed during the assembly of Western Gondwana in the Brasiliano-Pan-
19 African Orogeny. The Neoproterozoic Sergipano Belt is part of the Province and occupies a
20 large area of its southern portion. Investigation of provenance and tectonic environment of the
21 metavolcanic-sedimentary complexes in this belt are of regional amplitude and may reveal
22 important aspects of the evolution of the province. In this study new whole-rock
23 geochemistry, isotope Nd data and U-Pb geochronological data on detrital zircon of the
24 metavolcanic-sedimentary Araticum Complex within the northeastern part of the Sergipano
25 Belt, in order to contribute to the understanding the role of the Sergipano Belt in
26 amalgamation of Western Gondwana. The related data indicate provenance from eroded
27 island arcs and back-arc-relate settings during the Neoproterozoic. Detrital zircon grains
28 indicate populations of Ediacaran-Cryogenian (ca. 660-620 Ma) and Tonian-Stenian ages
29 (around ca. 1047 Ma) suggesting that source areas represent extinct volcanic arcs of the
30 Pernambuco-Alagoas Domain to the north. Based on this study, it is suggested that sediments
31 of the Araticum paleobasin were deposited in an oceanic environment during the arc
32 exhumation over the Brasiliano-Pan African Orogeny, but also with strong contributions from
33 Stenian island arcs, which are attributed to the Cariris Velhos Orogeny. Our results support

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