U-Pb and Lu-Hf systematics in zircons from basement gneisses of the Araguaia Belt, Brazil: evidence for recycling of Archean crust during the Proterozoic.

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The Araguaia belt (**AB**), north-central Brazil, was formed during West Gondwana assemblage around 530-550 Ma. Archean inliers, grouped in the Colméia Complex (**CC**), occur along the northern segment of the belt. In the southern, Paleoproterozoic gneisses of the Rio dos Mangues Complex (**RMC**) constitute most of the basement. Both rock units were intruded by Paleoproterozoic granites, and all of them show imprint of the Brasiliano/Pan-African event. Sm-Nd isotope data suggested the juvenile character of the **RMC** orthogneisses [1]. We present U-Pb and Lu-Hf zircon data, obtained by LA-MC-ICPMS, for the orthogneisses to further investigate the formation of the basement of southern **AB**.

A **RMC** orthogneiss and a granite present U-Pb zircon ages of 2.05 and 1.86 Ga, respectively. Both rock units have similar Lu-Hf model age (T_{DM}^{C}), ranging from 2.77 to 2.97 Ga (orthogneiss) and 2.82 to 3.03 Ga (granite), which are slightly younger than those determined for the Archean orthogneisses (**CC**). Along with the negative values of $\varepsilon Hf_{(1800\text{-}2100Ma)}$, this indicates the recycling of Archean cust, in contrast with previously reported Sm-Nd data.

U-Pb zircon ages (~590 Ma) for orthogneisses previously included in the **RMC** indicate that the basement in the southern segment of the **AB** incorporates Neoproterozoic rocks too. However, inherited zircons (0.7, 1.0, 2.0 and 2.4 Ga) suggest contribution of older rocks. Hf-T_{DM}^{C} ages of these orthogneisses span between 1.8 and 2.3 Ga, with negative $\varepsilon Hf_{(590)}$, though there is a positive value with Hf-T_{DM}^{C} of 1.58 Ga. These data are interpreted as mixing of older and younger crust. Thus the younger orthogneisses may be related to the docking of the Goiás Magmatic Arc [2] in the Paleoproterozoic terrain.

[1] Arcanjo et al. (2013) *Braz. J. Geol* 43, 501-514. [2] Pimentel et al. *Braz. J. Geol* 30, 35-39.