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U-Pb SHRIMP AGES AND Lu-Hf ISOTOPES FROM GRANITES IN NORTHERN REGION OF THE PARAGUA TERRANE, BOLIVIA: TECTONIC AND MAGMA SOURCE IMPLICATIONS.

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The Pensamiento Granitoid Complex (PGC) is an important part of the Paraguá Terrane in the eastern Bolivia (SW Amazonian Craton), and is related to the Rondonian-San Ignacio Orogeny (1370-1340 Ma). Here we report the first combined zircon U-Pb SHRIMP and Hf isotopic study of three granitoids from the northern region of the Paraguá Terrane. Ten U-Pb analyses on zircon grains from one sample of the Orobayaya granite yield a concordia age of 1359 ± 5 Ma (MSWD=1.8) and positive εHf(t) ranging from +4.6 to +1.1 (mean of = +2.8) with two-stage Hf model ages (T_{DM2}) ranging from 2.02 to 1.67 Ga. Thirteen U-Pb analyses on zircon grains from one sample of Discordancia granite in the El Mojón sector, a granite which shows rapakivi texture and occurs as basement for the Huanchaca cover sequence (Sunsás-Aguapei province), yield a concordia age of 1343 ± 4 Ma (MSWD=1.14), with εHf(t) values ranging from +4.5 to +1.8 (mean= +3.2), and T_{DM2} model ages varying from 2.07 to 1.66 Ga. Ten U-Pb analyses on zircon grains from one granite sample collected in the Itenez (Guaporé) river near Costa Marques town (Brazil) yield a Concordia age of 1272 ± 5 Ma (MSWD=0.18), positive εHf(t) ranging from +5.6 to +4.3 (mean= +4.8), and T_{DM2} model ages varying from 1.74 to 1.53 Ga. The ages of 1359 ± 5 Ma for the Orobayaya granite and 1343 ± 4 Ma for the Discordancia granite, both included in the PGC, suggest that they represent, respectively, intrusions related to the subduction stage (1.37-1.35 Ga) and late- to post-collisional stage (1.35-1.30 Ga) of the Rondonian-San Ignacio orogeny. Late- to post-collisional rapakivi granites are also recognized in the neighboring side of Brazil in the Alto Candeias (1346-1338 Ma) and São Lourenço-Caripunas (1314-1309 Ma) intrusive suites. The 1272 ± 5 Ma age for the Itenez granite like the San Andres granite (1275 ± 7 Ma; εNd(t) = - 0.2) may be related to the initial extension phase of the development of the Sunsás-Aguapei province (< 1.30 Ga). Positive εHf(t) values for the Orobayaya, Discordancia, and Itenez granites indicate that they are mainly derived from juvenile sources.