

## ORISIRIAN MAGMATISM AND METAMORPHISM IN SURINAM: NEW GEOCHRONOLOGICAL CONSTRAINTS

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**RESUMO:** Several major belts of the Guiana Shield meet each other in Surinam. Two large greenstone belts start here, an eastward one (in the NE) and a westward one (in the NW). South of the eastern greenstone belt a large granitoid zone is situated. South of the western greenstone belt two other belts are found, a belt of acid metavolcanics and granitoids and a belt of high-grade metamorphic rocks (Coeroeni gneiss). Both belts run roughly Eastward at west of Surinam and make a bend to the SE in Surinam. In the centre, the two greenstone belts are separated by a belt of ultrahigh-temperature metamorphic rocks (the Bakhuis belt). The belt of acid metavolcanics, hypabyssal and biotite granites runs from the NW border across the Bakhuis belt towards the SE border with Brazil. Zircon Pb-evaporation ages of  $1987 \pm 4$  Ma and  $1980 \pm 4$  Ma were obtained, respectively, for an acid metavolcanic rock and a coarse (hypabyssal) leucogranite from the border area with Brazil (Sipaliwini). A biotite granite from the NW, just north of the Bakhuis belt, furnished a zircon Pb-evaporation age of  $1987 \pm 4$  Ma. The data point to an Orosirian age for the belt of acid metavolcanics and granites. Nd  $T_{DM}$  model ages between 2.15 and 2.44 Ga ( $-2.41 < \epsilon_{Nd}(t) < +1.34$ ) indicate that the magmatism was derived from reworking of a Siderian-Rhyacian crust with minor or insignificant contribution of Archean components. South of the magmatic belt lies the Coeroeni gneiss, the easternmost part of the Cauarane-Coeroeni belt. Pb-evaporation ages of 2 zircons from a migmatitic mobilisate in a biotite gneiss from the Coeroeni River showed substantial scatter, suggesting an age of  $1991 \pm 25$  Ma for the migmatization and high-grade metamorphism. A zircon Pb-evaporation age of  $1976 \pm 5$  Ma was obtained for a tonalitic hornblende-biotite gneiss from the Lucie River, near the border of the Coeroeni gneiss. U-Pb dating of titanite from the sample gave an age of  $1961 \pm 17$  Ma, indicating the end of higher-grade metamorphism and (probably) of gneiss doming. A cordierite tonalite from the Coeroeni river, with abundant xenoliths and enclaves of Coeroeni gneiss, furnished Pb-evaporation ages for 2 zircon grains as old as 2.72 and 2.89 Ga pointing to the presence of Archean inherited components. However, previous Rb-Sr dating of drill cores of Coeroeni gneiss had established a low initial  $^{87}\text{Sr}/^{86}\text{Sr}$  (0.7027), precluding the presence of a significant Archean contribution. The available data point to an Orosirian age for the emplacement and metamorphism of the Coeroeni gneiss complex, substantially younger than the age of metamorphism in the Bakhuis UHT metamorphic belt (2.07-2.05 Ga). The Orosirian ages for the high-grade metamorphic Coeroeni gneiss belt and the acid magmatic belt in W Surinam are in clear contrast with the Rhyacian age for the granitoid zone in French Guiana and the adjacent part of E Surinam.

**PALAVRAS-CHAVE:** GUIANA SHIELD; SURINAM; ORISIRIAN.