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Paleoproterozoic evolution of Senegal in the Birimian Framework

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The whole of East-Senegal Birimian terrains have been investigated with a pluri-thematic approach combining airborne geophysics, field mapping, geochemical and isotopic data. Birimian Easternmost Paleoproterozoic terrains begins with the Mako Group of volcanics and metavolcanics, all assumed to have been emplaced at 2.20-2.18 Ga as a juvenile crust.

Reworking of this Eo-Rhyacian crust is recorded with evidence of melting processes and associated products. At the scale of the Mako Group, the Mesorhyacian Sandikounda-Soukouta granodioritic suite and coeval intermediate to acid volcanism (2.18-2.14 Ga) reflect the consumption of the Eorhyacian juvenile crust during early collision stages.

The breakup of Eo-Rhyacian rocks, between 2.14 and 2.10 Ga has resulted in the formation of a main detrital basin that is now referred as the Dialé-Daléma Group. Main lithologies include silicoclastic deposits among which carbonate formations have been found. The upper part of this Group is characterized by the presence of acid to intermediate volcanics dated at ca. 2.1 Ga

The Saraya granitic suite dated at 2.10-2.08 Ga, is mainly recorded in the DD Group with emplacement of the main Saraya batholith and peripheric plutons. It is characterized as a syntectonic magmatic pulse generated in a tectonic context dominated by strong senestral shearing and melting of silicoclastic sources. The specific emplacement of the more Mg-K Boboti magmatic suite is recorded between 2.08 and 2.06 on the easternmost Birimian areas, with evidence of high temperature magma.