

SYNTHESIS OF THE NORTH AMAZONIAN PRECAMBRIAN SHIELD (SYNAPS) AND TRANS-ATLANTIC CORRELATIONS: A GEOLOGICAL FRAMEWORK FOR THE ANALYSIS OF PRECAMBRIAN CRUSTAL GROWTH

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On the basis of an integrated lithological-isotopic-structural approach, we present a 1/million scale geological map for the North Amazonian Precambrian Shield (Project SYNAPS 2000), and we discuss Precambrian crustal growth with special references to the West African Shield. The discovery of recycled Archean crust in SE French Guiana and more findings of Archean basement in Amapá (Brazil) lead to a new Archean-Paleoproterozoic boundary. From Amapá to Suriname, more than 50 new Nd-Sm, Pb-Pb, and U-Pb isotopic data argue for the individualisation of a juvenile Paleo-proterozoic crust, as the result of mantle extraction processes, starting at ca 2.2 Ga. Between 2.2 and 2.09 Ga, several stages of basins opening and closing, with associated magmatic pulses, occur in response to a broad tectonic régime dominated by transcurrent movements. In Suriname and western shield areas, HT/LP metamorphic belts are discussed in terms of granulite genesis and exhumation, relative to the surrounding Paleo- to Mesoproterozoic terrains. On the other side of the Atlantic, the West African Paleoproterozoic terrains, wrapped around the Man Archean core (3.5-2.8 Ga), show strong similarities with SYNAPS geological framework. In Ghana and East Ivory Coast, juvenile crust is identified at ca 2.2-2.17 Ga. Subsequent reworking starts at ca 2.12 Ga with the opening of large sedimentary basins. Further shortening events, dominated by continental sinistral shearing, lead to the closing of these basins, with no significant crustal thickening, and to the emplacement of syn-kinematic granitoid, dated at ca 2.09 Ga. The occurrence of coeval Paleoproterozoic granulitic event(s) (2.2-2.1 Ga) is restricted to the margins of the Man archean core.