Reevaluation of Leonian an Liberian events in the geodynamical evolution of the Man Rise (West African Craton)

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The Leonian (3300-3000Ma) and Liberian (2900-2700Ma) events are the remarkable magmatic and tectono-metamorphic events of the Archean domain of the Man Rise. The Liberian overprints very often the Leonien and sometimes obliterates it. In Ivory Coast, the in-situ dating by LA-ICPMS of zircons of the charnockite of Mangouin (MANG) and the augen orthogneiss of Lagoulalé (LAG) allowed to revalue the ages of these two tectono-metamorphic events. The charnockite represents the paroxysm of Liberian metamorphism whereas the augen orthogneiss would be set up at the end of this tectono-metamorphic event. The age of the charnockite of Mangouin is 2798±7Ma and that of the augen orthogneiss of Lagoulalé is 2794±12Ma with inheritance at 3121±37Ma. The Nd model age at 3250Ma for these rocks is agreement with this inheritance. We suggest that they take place initially in the context of rifting of the Archean proto-continent between 3200 and 2700Ma. During this period, oceanic crust and a volcanic arc system associated with subduction zones are generated and are recycled later by Burkinian orogeny between 2500 and 2200Ma (early Birimian).

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