No westward continental accretion in the Amazonian craton between the Trans-Amazonian and Grenvillian Orogenies : abolish geochronological provinces

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A review of the evolution of the Amazonian Craton based upon published literature shows it was formed mainly as a result of three major orogenies: (i) an Archean event exposed in the Carajás-Amapá areas in the southeast and the Imataca area in the northwest (3.0–2.5 Ga); (ii) a Trans-Amazonian event, exposed in the 1500-km long greenstone-tonalite belt with associated granulite belts along much of the northern coast of the Guianas and northern Brazil (2.2–2.0 Ga); (iii) the Grenvillian orogenic belt along the westernmost part in southwestern Brazil, continuing in the Colombian Andean zone (1.3–1.0 Ga). The vast central area consisting of Paleoproterozoic and Mesoproterozoic granitoid and low-grade metavolcanic rocks was emplaced almost uninterruptedly between 2.0 Ga and 1.0 Ga, although cratonization was largely completed by 1.75 Ga. This magmatic episode shows no clear relation to orogenic events, and thus was largely anorogenic . The granitoid belt shows resemblance to the coeval and equally anorogenic Trans-Scandinavian Magmatic Belt in the Baltic shield. We argue that previous continental accretion models of the Amazonian Craton, based on progressively younger granite ages westwards are not supported by recent geochronological data. Geochronological provinces, so far the most used subdivision of the Amazonian Craton, are not based on meaningful geotectonic principles , and should be abolished.

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