EGU21-10714
https://doi.org/10.5194/egusphere-egu21-10714
EGU General Assembly 2021

Congo-São Francisco at 1.11 Ga and the megacontinent Umkondia

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Currently three supercontinent cycles have been identified and existed supercontinents named from youngest to oldest: Pangea, Rodinia and Nuna/Columbia. Recently Wang et al. (2020) suggested that supercontinent amalgamation were each preceded by ~200 Myr by the assembly of long-lasting *megacontinent* aking to Gondwana.

The Congo-São Francisco (C/SF) craton is a main building block in Gondwana due to its central location, but its participation to Rodinia is controversial. Salminen et al. (2018) presented 1.11 Ga paleomagnetic and geochronological data from a prominent Epembe-Huila swarm of gabbronoritic dykes in the southern part of the Congo craton in Namibia and in Angola. This paleomagnetic pole yields a relatively low paleolatitude for the C/SF craton at ca. 1.11 Ga and permits a direct connection between Congo and Kalahari cratons. This connection supports an earlier qualitative comparison (Ernst et al., 2013), that the mafic Epembe-Huila swarm was an integral component of the Umkondo Large Igneous Province (LIP). The 1.11 Ga Umkondo LIP is widespread across Kalahari craton, and coeval mafic magmatism has been identified in several of the world's other late Mesoproterozoic cratons: Laurentia, India, Amazonia, and Antarctica (Grunehogna). Were these coeval provinces spatially linked at the time of emplacement during the amalgamation of Rodinia? Robust paleomagnetic and geochronological data from Laurentia and Kalahari have demonstrated substantial separation between those two blocks at 1.11 Ga (Swanson-Hysell et al., 2015). However, based on similar tholeiitic magmatism Choudhary et al. (2019) proposed that Kalahari and C/SF together with Amazonia and northern India constituted "Umkondia" at 1.11 Ga. It has been proposed that Umkondia occupied an intermediary "megacontinental" role in the Nuna-Rodinia transition analogous to Gondwana in Rodinia-Pangea evolution (Wang et al., 2020). Contradicting Gondwana the proposed Umkondia was not long-lasting, since it has been proposed that Kalahari and Congo separated after 1.10 Ga to form a vast ocean (ca. 6000 km) during the formation of Rodinia and widespread juvenile intra-oceanic magmatism along the present-day central Brazil indicates a large ca. 0.94 Ga ocean between C/SF and Amazonia (Cordani et al., 2003).

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