

## **$^{176}\text{Hf}$ and $^{144}\text{Nd}$ isotopes constraints on the origin of Mesoarchaeon felsic crust in Ntem Complex, Northwest Congo Craton**

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Most of continental crust was formed during the Archean. However, the geodynamic processes that generated the early earth's crust remain uncertain because of geological activity, especially plate tectonics. We have no certitude about the onset of plate tectonics, a major signature of geodynamic on Earth today. One of the earliest evidence of plate tectonics (~2.02 billion years (Ga) [1,2]) occurs in the Congo Craton of Central Africa. Here we present bulk-rock Hf and Nd isotopic data of Archean felsic rocks from Ntem Complex in southern Cameroon. New data show these ~2.92–2.85 Ga rocks have subchondritic initial  $^{176}\text{Hf}/^{177}\text{Hf}$  and  $^{143}\text{Nd}/^{144}\text{Nd}$  ratios with a mean  $\varepsilon\text{Hf}_{(i)}$  and  $\varepsilon^{143}\text{Nd}_{(i)}$  of  $-3.3\pm 1.4$  and  $-3.9\pm 0.7$  (2SD) respectively, which suggests the involvement of older crust in their petrogenesis. Combined geochemical and Hf-Nd-Sr isotopic literature data compositions reveal that this large complex of Archean crust formed by reworking of much older Eo- to Paleoarchean (~3.75–3.31 Ga) mafic crust probably in the Archean hot subduction zones. This suggests the possibility of mobile plate tectonics during the Archean-Paleoproterozoic transition period (3.0 – 2.5 Ga) in Congo Craton.

[1]François, C., Debaille, V., Paquette, J.-L., Baudet, D., Javaux, E.J., 2018. The earliest evidence for modern-style plate tectonics recorded by HP–LT metamorphism in the Paleoproterozoic of the Democratic Republic of the Congo. *Sci Rep* 8, 15452. <https://doi.org/10.1038/s41598-018-33823-y>

[2]Loose, D., Schenk, V., 2018. 2.09 Ga old eclogites in the Eburnian-Transamazonian orogen of southern Cameroon: Significance for Palaeoproterozoic plate tectonics. *Precambrian Research* 304, 1–11. <https://doi.org/10.1016/j.precamres.2017.10.018>