+

+ #0019

+

Recycled roots of Hadean protocrust – A possible OIB endmember?

*Tusch, J., Hoffmann, J.E., Hasenstab, E., Münker, C. *Universität zu Köln, Institut für Geologie und Mineralogie, Zülpicher Str. 49b, 50674 Köln j.tusch@uni-koeln.de

In recent models, deficits of ¹⁸²W in modern OIBs are explained by a primordial reservoir in the lower mantle that mixes with classical mantle endmember components DMM, EM1, EM2, and HIMU [1]. Yet the exact origin of the low ¹⁸²W endmember in modern OIBs is not known. Popular models argue that negative ¹⁸²W isotope anomalies originate from core-mantle interaction either by chemical exchange or by isotopic equilibration [2,3]. Understanding the origin of this mantle reservoir and its evolution in the geologic past is of great importance to resolve the ¹⁸²W dichotomy between modern OIBs and most Archean mafic rocks that largely display positive ¹⁸²W anomalies. Notably, Archean rocks from the Kaapvaal Craton, southern Africa, are unique in this regard, as they were shown to be the only known Archean rocks displaying negative ¹⁸²W isotope anomalies. To better understand the origin of these ancient signatures we performed high-precision ¹⁸²W isotope measurements on a wide selection of rocks from the Kaapvaal Craton that were previously analyzed for ¹⁴²Nd [4] and combine our results with constraints from long-lived $^{176}\mathrm{Hf}\text{-}^{143}\mathrm{Nd}\text{-}^{138}\mathrm{Ce}$ and trace element systematics to better characterize their +

Cite abstract as:

Tusch, J., Hoffmann, J.E., Hasenstab, E., Münker, C. (2021) Recycled roots of Hadean protocrust ? A possible OIB endmember?. DMG Sektionstreffen Petrologie und Geochemie, Online (Germany), abstract URL: http://paneth.eu/PanethKolloquium/DMG2021/0019.pdf (abstract #0019).