

Hadean peridotites in Greenland?

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Greenland hosts significant exposures of Eoarchean continental crust and the famous Isua supracrustal rocks, and therefore provides important constraints on Earth's earliest geological processes. Furthermore, several ultramafic bodies of currently unknown origin are also present within this Eoarchean continental crust, as large enclaves which are typically associated with amphibolite belts [1].

One of these peridotite bodies, known as the Ujaragssuit Nunât Intrusion [2], is particularly interesting because its siderophile isotope compositions are highly unusual [3] and indicate a Hadean age [4] for chromitites enclosed within peridotite as up to 2 x 4 meter large lenses, as well as in the form of repeated stratiform layers.

In this contribution, we present our recent field observations from the Ujaragssuit Nunât Intrusion, and summarise preliminary geochemical findings. These data support the notion that the Ujaragssuit Nunât Intrusion might in fact represent the very oldest rocks identified on Earth, and predate the late veneer. This locality in Greenland can therefore potentially contribute with significant new insights on the physical and geochemical boundary conditions of our planet prior to the formation of the continental crust and the differentiation of the mantle.

References:

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