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# A non-traditional stable isotope perspective on early Earth continental magmatism

**NICOLAS DAVID GREBER**[1,2], SARAH AARONS[3], NICOLAS DAUPHAS[4], PAUL S. SAVAGE[5], JESSE R REIMINK[6] AND JULIAN-CHRISTOPHER STORCK[1]

[1]University of Bern
[2]Muséum d'histoire naturelle de Genève
[3]Scripps Institution of Oceanography
[4]The University of Chicago
[5]University of St Andrews
[6]Pennsylvania State University

Presenting Author: Nicolas.greber@geo.unibe.ch

The lithologic and chemical composition of the continental crust impacts Earth atmosphere and environment through weathering feedbacks and nutrient supply for example. However, despite being important for the biological and atmospheric evolution of our planet, the question on how the Earth early continents formed and evolved is still a matter of considerable debate. Non-traditional stable isotope systems have shown great potential to improve our understanding of the magmatic mechanism that were responsible for the formation of Hadean and early Archean continents, like the identification of source contamination or the liquid line of descent along which primary melts differentiate. We will present a summary of our work that has been conducted over the past years and that shed further light on the composition and formation mechanism of the early continents. Our results indicate (i) that the part of the continental crust subjected to erosion consisted of over 55% felsic rocks, (ii) since around 3.8 Ga felsic rocks exhibit Ti isotopic signatures in agreement with calc-alkaline differentiation and subduction processes, and (iii) that source contamination with surface material was likely widespread.