

***In situ* zircon U-Pb ages and $\delta^{18}\text{O}_{\text{VSMOW}}$ values of alkali feldspar syenites and topaz granites from the Suomenniemi batholith**

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The Suomenniemi rapakivi granite batholith in SE Finland is the host of peraluminous topaz-bearing granites and peralkaline alkali feldspar syenites. As these rock types are commonly related to important commodities (e.g., Sn and REE), perception of their petrogenesis is crucial in gaining further insights into the metallogenic potential of rapakivi granites.

Zircon O and U-Pb isotope data from three alkali feldspar syenites and two topaz granites were obtained by *in situ* secondary ion mass spectrometry. The $\delta^{18}\text{O}_{\text{VSMOW}}$ values of these syenites and granites show no marked differences [$\delta^{18}\text{O}_{\text{VSMOW}}$ of 8.17 ± 0.17 ‰ (n=45) and 8.04 ± 0.17 ‰ (n=30), respectively]. The weighted average $^{207}\text{Pb}/^{206}\text{Pb}$ ages of the alkali feldspar syenites are 1642 ± 4 Ma (n=20), 1644 ± 4 Ma (n=19) and 1645 ± 5 Ma (n=19). The average $^{207}\text{Pb}/^{206}\text{Pb}$ ages of the topaz granites are 1635 ± 6 Ma (n=23) and 1641 ± 4 Ma (n=20).

Our data show that the zircon U-Pb ages and O isotope compositions of the alkali feldspar syenites and topaz granites are identical within the experimental error. Moreover, they do not markedly differ from those of the main granite phases of the Suomenniemi batholith (Elliott et al. 2005, *Miner. Petrol.* 85, 223-241; Rämö and Mänttäri 2015, *Bull. Geol. Soc. Finland* 87, 25-45), and imply a source with a prominent crustal component in both the subaluminous granites and peralkaline syenites of the batholith.