

## **MINERALOGY AND GEOCHEMISTRY OF SOILS OF THE ALNÖ CARBONATITE COMPLEX, SWEDEN**

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The Alnö Carbonatite Complex is located NE of the town Sundsvall, Sweden. The intrusion of carbonatites and alkaline rocks into the host rocks migmatitic gneisses - took place around 560 Ma BP. The differences in soil development as well as the petrology and geochemistry of the soils in this ring-shaped intrusion were studied in soils on gneiss and different types of alkaline rocks. The parent rocks in the soil profiles were unaltered/ slightly fenitized gneisses, fenites, ijolites, sövites and alnöites.

The soils on the alkaline rocks showed anomalous contents of Ba, Cr, F, Nb, Sr, Th, U and REE, which are enriched in the alkaline rocks in minerals such as monazite, perovskite, spinel and sphene and by substitution processes in the crystal structure, e.g. Ti by Nb in perovskite or Ca by Eu in plagioclase. The alkaline dykes in the intrusion strongly influence the soil mineralogy, geochemistry and pedogenesis in contrast to the soils developed on the highly acidic gneiss soil profiles. The differences are also visible in the field by contrasting vegetation which facilitates the detection of alkaline dykes in the densely wooded area of the Alnö Carbonatite Complex.

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