

## **Pb isotope systematics of K-feldspar from the Precambrian crust in the Baltic Sea region**

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The Precambrian crust under the Baltic Sea (Svecobaltica) is covered by Phanerozoic sedimentary sequences, but represents the SE extension of the Fennoscandian Shield within the East European Platform. A shift from 1.90-1.89 Ga Svecofennian crust in the northern/central parts of the island of Gotland to the 1.81-1.77 Ga TIB 1a generation of the Transscandinavian Igneous Belt granitoids has been recognized on southern Gotland [1]. 1.85 Ga granitoids, belonging to TIB 0 (the oldest TIB generation), was reported from Frigsarve [1], but even younger (1.47 Ga) expressions of igneous activity are also known at Hamra on southern Gotland [2].

In this study, we report K-feldspar Pb-Pb isotopic results from 13 drill holes (mostly percussion drillings) on Gotland and adjacent offshore regions from the depths of 612 to 1649 m. We acknowledge the Geological Surveys of Sweden and Latvia for providing access to the study material.

The least radiogenic Pb isotope signatures of each sample revealed four distinct populations with  $\mu$  values between 9.5 and 10.5. Deformed granitoids east of Gotland have  $^{206}\text{Pb}/^{204}\text{Pb}$  ratios  $< 15.78$ , which are comparable with Svecofennian ore lead of Bergslagen, Sweden, implying the presence of the Svecofennian crust 100 km west of the Latvian coast. Although being contemporaneous, the 1.88 Ga När granodiorite has higher  $^{206}\text{Pb}/^{204}\text{Pb}$  ratios. The  $^{206}\text{Pb}/^{204}\text{Pb}$  ratios of the Kvarne granite are 15.81, almost identical to the ore lead composition of TIB 1a.  $^{206}\text{Pb}/^{204}\text{Pb}$  ratios of  $\sim 16.45$  were recognized both in the 1.47 Ga Hamra granite and in the 1.85 Ga Frigsarve granitoid, while very high  $^{206}\text{Pb}/^{204}\text{Pb}$  ratios ( $> 25$ ) were recognized in a TIB granitoid, close to a fracture zone offshore Latvia, which may reflect a Caledonian reactivation of the U-Pb system.

[1] Salin *et al.* (2019) *Precambrian Research* **328**, 287–308. [2] Salin *et al.* (2020) *NGF Abstracts and Proceedings* **1**, 189–190.