Thermal and hydrothermal influence of rapakivi igneous activity on Late Svecofennian granites in SE Finland

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Recent discoveries of polymetallic mineralization in the Sarv-laxviken area, south-eastern Finland, have unveiled the ore potential for rapakivi granites along the western margin of the Wiborg Batholith (Cook et al., 2011). Two kinds of mine-ralized systems have been recognized: 1. quartz veins with In, Cu, As, Sn and W in coarse-grained wiborgites and 2. altera-tion veins with Mo, Sn, As, Cu, Bi, Be in late-stage even-grained rapakivi granites (Valkama et al., subm.).

Exploration activities in the Svecofennian bedrock at Lill-träsket, 2 km west of Sarvlaxviken, have resulted in the disco-very of an ore boulder with a 1/2 m wide greisen alteration zone (with 5 % Zn) and significant soil anomalies with respect to Zn, Cd, In, Ag, Fe, Pb, Bi and As. Intense ground magnetic anomalies match the iron rich soil anomalies, clearly indicating a very local origin of the ore boulder and the soil anomalies. This implies that wide-spread polymetallic mineralization also exists in the Late Svecofennian granites, up to one km from the rapakivi contact, which is interpreted as a result of the rapakivi igneous activity.

The polymetallic mineralizations in the Lillträsket area are located within the 10-20 km wide thermal alteration aureole along the Wiborg Batholith that Vorma (1972) identified for the transfer of microcline into orthoclase in the Svecofennian crust. In the Lillträsket area, this thermal alteration is accom-panied by wide-spread hydrothermal potassic alteration.

In order to refine Vorma's contact aureole, further petro-graphic studies of the microcline-orthoclase relations are now undertaken, together with studies of the geo-chemistry and the Rb-Sr systematics in the Late Svecofennian granites, along a 16 km profile from the rapakivi contact towards the west.

References:

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