**Appendix C.**

**Paleomagnetic site descriptions**

*Site 1: Riuttamäki Cu-Zn-Ag deposit*

Six samples were taken from the Riuttamäki deposit in the central part of the magnetic anomaly. The samples were taken from the proximity of a shear zone, and some, but not all, of the samples contain visible As-Cu-Fe-sulphides. Samples from this site show high remanent magnetization in comparison with the other samples from the study area. All petrophysical properties (remanence, susceptibility and density) show high variation which is controlled by the amount of sulphides.

Thermomagnetic analyses of the barren granitoid (thermomagnetic method is described in Appendix B) indicate that the main magnetic mineral in the sample is magnetite, as manifested by the susceptibility decrease at about 580°C – the Curie point of magnetite. In the sulphide bearing samples, the main magnetic mineral is pyrrhotite, as indicated by the susceptibility decrease at 325°C, the Curie point of pyrrhotite.

*Site 2: Ankeriasjärvi*

Site 2 is located southeast of the magnetic low area of the Hiekkapohja granodiorite. It shows a slightly higher susceptibility compared to samples from within the anomaly area. Six samples were taken from a homogeneous porphyritic granodiorite with no visible deformation. The susceptibilities and remanence intensities of the samples are low. The values fall in the same range as the values from the Hiekkapohja anomaly area. No consistent remanence direction was obtained. Thermomagnetic analyses point to magnetite as the main magnetic mineral.

*Site 3: Soimavuori*

Paleomagnetic site 3 represents the Soimavuori lithodeme from the western part of the anomaly area. The rock type is grey with light patches which may consist of titanite surrounded by epidote and chlorite (Mikkola et al. 2016). On the magnetic anomaly map, the Soimavuori shows as an area of slightly higher magnetization compared than rest of the anomaly. The susceptibilities, remanence intensities and densities of the granite samples are within the same range as the ones for the samples from site 2, although the densities are slightly lower. Thermomagnetic analyses suggest magnetite as the main magnetic mineral. In those measurements the strongly magnetic magnetite may mask other ferromagnetic minerals, such as the less magnetic pyrrhotite (e.g. Mertanen et al. 2017). Therefore, it is possible that the studied samples may also contain pyrrhotite.

*Site 4: Halsvuori*

The Halsvuori sampling site is in the northern part of the magnetic anomaly (Fig. 2 in publication). The rock samples represent the relatively strongly deformed potassium feldspar porphyritic Hiekkapohja granodiorite, cross-cut by fine-grained granitic veins. Six samples were collected from the Hiekkapohja granodiorite belonging to the Muurame lithodeme, and another six samples from the granite veins of the cross cutting Soimavuori lithodeme. Petrophysical properties of the porphyritic granitoid show low magnetization values resembling those of the sites 2 and 3. The cross-cutting veins display marginally lower values.

*Sites 5 and 6: Lehesvuori*

Six samples were collected from a slightly deformed porphyritic Lehesvuori granite at the paleomagnetic site 5. Deformation at this locality is distinctly weaker than in the porphyritic granite at the site 4, whereas the magnetic anomaly is slightly higher. Six samples were taken from a quartz-feldspar porphyritic vein (site 6) that crosscuts sharply the granite. The Lehesvuori granite and the cross-cutting vein have distinctly different magnetic properties compared to the other studied samples from the area, but the observed properties of the granitoid and the vein are similar. Thermomagnetic analyses from the granitoid and the vein show that the main magnetic mineral here is magnetite. Neither of the rock types from Lehesvuori carry a stable remanence direction. This may be due to deformation which has scattered the original directions. On the other hand, the higher susceptibilities point at a coarse-grained magnetite, which would be unable to preserve a stable remanence. There are no indications of the presence of pyrrhotite.

**References**

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