First 66 boxes on the table.

Looking into “the hole” a.k.a logging the beginning of #GTK’s #3kdrillhole

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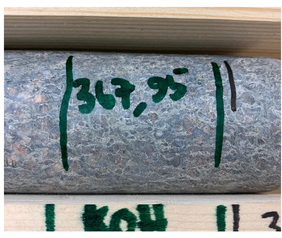
Due to my personal preference for felsic rocks I got the joy of logging the first 1630 and something meters of the planned 3000 meter long hole by Geological Survey of Finland (GTK) in Koillismaa region, Central Finland. The aim of the drilling is to finally solve the cause of a major gravity and magnetic anomaly, often referred to as the “Hidden dyke”. If you’re not familiar with the geophysical and geological background of the target you might want to learn more from e.g. this link as I will be concentrating on the actual core.

The logging was done in GTK’s facilities at Rovaniemi and aided by GTK’s indispensable research assistants taking care of technical side of things, from marking the meters to taking photos of reported boxes and everything in between.

Leucogranite dyke in tonalite gneiss displaying post-crystallization growth of K-feldspar.



The mysterious quartz-feldspar porphyry.

The first major diabase dyke occurred from 530 to 660 meters. Noteworthy was that the dyke was also crosscut by leucogranite dykes, so unless the diabase was Archean we definitely have Proterozoic felsic magmatism present.

Contact between a leucogranite and a diabase at 615.5 meters.

Albite altered diabase at ~600 meters.

The diabase was followed by biotite granite which continued to depth of 1140 meters. This unoriented or weakly oriented homogeneous and equigranular rock is presumably Proterozoic, as it contains locally diabase enclaves and presents a new rock type in the Koillismaa region.

Biotite granite from 900 meters.

Diabase enclaves in biotite granite from 1400 meters.

After 1150 meters the core consisted of intermittent biotite granite and diabase until 1427.25 when a mafic to ultramafic unit most likely presenting the “Hidden dyke” was reached. I’m not going into details about it as it will be logged later by the specialists of these rock types.

Peridotite at ~1500 meters.

Around 1570 meters the core re-entered into biotite granodiorite, not completely different from the biotite granite before the mafic-ultramafic unit, which continued to depth of 1630 meters i.e. the last seen boxes.

After four longish days thin section box contained 75 rock chips, analyze sample list was equally long and additional eighth age determination samples were taken. So, plenty of material for further description and classification of the observed rock types, work which will to large extent be carried out as a master’s thesis project in University of Turku. The material will be complemented in the summer by mapping of the outcrops in the vicinity of drilling site.

#bedrock #drilling #granite #Koillismaa #3kdrillhole #GTK #diabase #geology