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Faculty of Engineering
Engineering Geology
Tina Martin

Call for Master Thesis:

Geophysical induced polarization investigations at a black shale anomaly in southern Sweden

In south-western Scania a well-known outcrop area of Ordovician rocks is found at Fågelsång (Södra Sandby). In this interesting geological setting a core drilling was carried out in 2013 with a subsequent geological classification in 2018 (LU Master Thesis: Fisnik Balija). From the classification, it could be observed that in the first tens of meters (black-) shale structures are present. To investigate these black shale areas in-situ, non-destructive geophysical methods as Induced Polarization (IP) can be used from the surface.

The geoelectrical method can be measured in frequency domain (FDIP) or time domain (TDIP). Field experiments are planned to determine the IP signature of the local shale and to compare both methods (FDIP and TDIP). Furthermore, it is of interest to benchmark recent advances in TDIP (within the last five years) against previous standards. If possible, also some minor lab measurements at the core samples should be conducted and compared with the field results. The data needs to be analyzed afterwards under the use of different inversion software.

We are looking for one or two top students who is interested in writing a master thesis on the topic. The scope of the thesis is flexible depending on the number of students and their background. Furthermore, student(s) needs the following skills:

- Well-structured
- Working precise, independently and in time
- Physical understanding
- Some experiences with geophysical measurement methods
- Basic geological knowledge
- Bringing in personal ideas
- Love to work outdoors (regardless of the weather…)

The thesis work will take place at Engineering Geology, LTH / Engineering Faculty.

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