**An integrated ichnology and sedimentological study of the organic-rich Botneheia Formation (Middle Triassic) with emphasis on the ichnogenus *Thalassinoides*, Edgeøya, Svalbard**

*Sofie Bernhardsen1,2, Atle Mørk2 and Victoria Sjøholt Engelschiøn3*

1Equinor ASA (sbern@equinor.com)

2Norwegian University of Science and Technology, Department of Geoscience and Petroleum

3Norwegian Center for Paleontology, Natural History Museum, University of Oslo

This presentation is a summary of a master thesis delivered at Norwegian University of Science and Technology in 2019. The thesis focuses on the Middle Triassic Botneheia Formation on Eastern Svalbard which is the best source rock on the northwestern Barents Sea shelf with up to 12 % total organic carbon. Shale and silt were deposited in an open marine environment in a transgressive-regressive second order regime. Though the shales are often interpreted as anoxic, there are numerous occurrences of the trace fossil *Thalassinoides*, which is thought to depend on oxygenated bottom waters. Detailed studies linking *Thalassinoides* to the sedimentology are so far lacking on Edgeøya. This thesis aims to understand the formation and preservation of *Thalassinoides* burrows and investigates spatial and temporal variations. During fieldwork in 2018, six field localities on Edgeøya were logged and sampled in detail. Logs were divided into sub-facies and correlated to total organic carbon data. A detailed, high-resolution study of the Muen plateau on Edgeøya describes the occurrences of *Thalassinoides*. Trace fossils were analyzed using computed tomography scanning, thin-sections, and morphological size measurements. On the Muen plateau, *Thalassinoides* are found in 20 silty shale beds, alternating with laminated shale and coquina beds. These fluctuations indicate variation from oxic/dysoxic to anoxic bottom waters.