



## **Magnetostratigraphy of the Middle Triassic of central Spitsbergen, and its relationship to Tethyan-based magneto-biostratigraphies**

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The magneto-biostratigraphic information for the Botneheia Fm (Anisian- Ladinian) at Milne Edwardsfjellet (central Spitsbergen) is presented. The Botneheia Fm is a succession of mostly dark grey to black shales, which are more intensely laminated in the upper part of the formation. Minor amounts of siltstones, calcitic concretions and phosphate cemented intervals occur, with more silty-beds common in the lower parts of the formation. Palaeomagnetic information was determined by combined thermal and alternating field demagnetization, which limited the extensive alteration caused by thermal demagnetization above 250°C. Magnetic mineralogy is carried by both magnetite and magnetic sulphides. The palaeomagnetic information from the Botneheia Fm is difficult to extract, since, the ancient magnetizations are strongly contaminated by an overlapping present-day like magnetization, giving rise to mostly great-circle like trends to apparent Triassic-like magnetizations. The ammonoid biostratigraphic data suggests the Botneheia Fm at Milne Edwardsfjellet probably continues without significant break from the underlying Lower Triassic (Vikingshøgda Fm). This is confirmed by the magnetostratigraphy, which indicates possibilities in how to best equate Boreal- Tethyan successions at the Lower to Middle Triassic boundary. The Lower Anisian is considerably expanded in thickness compared to the Upper Anisian and Ladinian in the Botneheia Fm. In spite of limited biostratigraphic constraints in the upper part of the Botneheia Fm, and inadequate magnetostratigraphic sampling density, over

the condensed parts of the succession, the data does allow a clear magnetostratigraphic match to more intensely sampled magneto-biostratigraphies in Tethyan sections. This demonstrates the relationship between the disparate boreal and Tethyan biostratigraphies. A substantial hiatus characterizes the Ladinian- Carnian boundary (junction of Botneheia and Tschermakfjellet formations) in central Spitsbergen, so magnetozones, near this boundary, identified in Tethyan sections are absent.