



## **The Late Jurassic world of the high Arctic, Spitsbergen, Svalbard**

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During the Mesozoic the area now known as Svalbard drifted from 45°N to 65°N. The average global temperature was significantly higher than now. In the Late Jurassic the location now known as Svalbard was covered by a shallow ocean and the Agardhfjellet Formation is the onshore lateral time equivalent of important source rock deposits in the Barents Sea and Norwegian Sea. Based on studies on outcropping sections it has long been assumed the formation was a rather homogeneous marine, organic rich, black shale deposit and formed under stable anoxic conditions. A new detailed sedimentological, geochemical and paleontological description and understanding of the complete Agardhfjellet Formation was necessary to correlate the high Arctic with other sections across the world. The identification of invertebrate and vertebrate faunal assemblages together with geochemistry in two drill cores (DH2 and DH5R) have allowed for new insights in the depositional environment and revealed a much more complex development of the high Arctic in the Late Jurassic. Observations indicate a shallow marine shelf depositional environment, within an epicontinental sea with variable dysoxic, anoxic, and oxic sea floor conditions and a far more complex fauna than previously assumed, changing in response to a prograding and retrograding clastic wedge.