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The Early Cretaceous ammonite fauna of North-East Greenland – linking the Boreal with the Tethys

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A kilometre thick Jurassic – mid-Cretaceous black mudstone dominated succession is suddenly interrupted by a thin interval of Upper Ryazanian – Hauterivian light grey and red calcareous mudstones in North-East Greenland. The black mudstones contains only a few fossils and almost none benthic fossils and represent an anoxic–dysoxic depositional environment. The Upper Ryazanian – Hauterivian, in contrast, is highly fossiliferous and is characterised by a diverse fauna including benthic fossils of bivalves, brachiopods, serpulids, crinoids and echinoids. The interval represents a relatively short interval of complete change to oxic bottom water conditions. The fauna and flora include Tethyan elements which appear totally out of place and their appearances in North-East Greenland are unique for the Boreal Realm. The ammonite fauna, which was recently revised and described by the author (Alsen 2006), is dominated by characteristic Boreal polyptychitids. However, it also includes neocomitids, bochianitids and leiostraceans of Tethyan affinity, some of which occur in Greenland far north of their normal distribution areas. The ammonites form the basis of a chronostratigraphic zonation. The zonation provides a frame work for further studies of the Early Cretacoceus palaeoceanographic changes in the Greenland – Norwegian sea strait which connected the Boreal in the north with the Tethyan Realm in the south.

References

Alsen, P. 2006: The Early Cretaceous (Late Ryazanian – Early Hauterivian) ammonite fauna of North-East Greenland: taxonomy, biostratigraphy, and biogeography. Fossils & Strata 53, 229 pp.