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Late Triassic (Norian) foraminifera from Hopen Island, Barents Sea, paleoenvironmental significance and sequence stratigraphy implications

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The dark laminated mudstones of the Flatsalen Formation exposed on Hopen Island, in the Barents Sea record an early Norian transgression. At the base of the Formation, the Slottet Beds are considered to represent a transgressive lag deposit overlaid by the finer sediments which preserve agglutinated foraminifera, radiolaria and ostracod casts in the Lyngefjellet outcrop. During the transgressive phase the maximum abundance of foraminifera was noted, with benthonic assemblages dominated by small size Trochammina and Ammodiscus species. These types of assemblages are indicative of neritic depositional settings in the boreal domain, probably controlled by influxes of fresh water from adjacent land masses (Nagy et al., 2010). An influx of radiolaria, assumed to represent a maximum flooding surface (Mfs), indicating the onset of fully marine conditions was observed higher in the section, with marine microplankton peaking 9m higher. The decoupling between marine benthonic and planktonic microfossils is believed to be a consequence of a stratified water column. The Mfs is coeval with a marked decrease in the abundance and diversity of foraminifera and a change from epifauna to infauna - dominated agglutinated assemblages suggesting bottom waters hypoxia. In the first stage of marine regression, unstable palaeoenvironmental conditions are inferred, based on a gradual increase in dominance of few taxa, including opportunistic species of Glomospira.

Nagy, J., Hess, S. and Alve, E., 2010. Environmental significance of foraminiferal assemblages dominated by small-sized Ammodiscus and Trochammina in Triassic and Jurassic delta-influenced deposits. Earth-Science Reviews, 99, 31-49.