Late Palaeozoic palaeoenvironments in the northern North Atlantic and central Arctic – interplay between tectonism and climatic changes

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This paper reviews the Late Palaeozoic depositional evolution of the central northern margin of the Pangaean supercontinent to provide a framework for understanding of the tectonic and climatic control on changing palaeoenvironments. The Upper Palaeozoic sedimentary successions along the eastern and northern coast of Greenland, Spitsbergen and Bjørnøya together with core and seismic data from the Norwegian Barents Sea allow detailed studies of the palaeoenvironmental changes of the northern North Atlantic and central Arctic following the Caledonian and Franklinian orogenies. Onset of sedimentation during the latest Devonian – earliest Carboniferous, and regional shifts in deposition during mid-Carboniferous, early Permian and mid-Permian time are all linked to tectonic reorganization of the region. The area hosts two saline giants, the Late Carboniferous – Early Permian salt basins on the western Barents Shelf and the Northeast Greenland shelf (Nordkapp, Maud and Danmarkshavn basins) and the younger Permian Zechstein Basin of NW Europe (Ref). Salt deposition took place at approximately 20-30 degrees northern palaeolatitude and the southward displacement of salt deposition over time reflects the large scale northward drift of the Pangaean supercontinent during the Late Palaeozoic combined with ongoing rifting in the region