



Do relative sea-level falls preserve an environmental snapshot of a once more extensive coastal sabkha on the Laurentian margin in Scotland?

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The Durness Group of northwest Scotland represents a kilometre-thick succession of Middle Cambrian to lower Middle Ordovician carbonates. Cambro-Ordovician rocks crop out in a narrow belt along the Caledonian foreland and within the Moine Thrust zone, stretching some 170 km from Loch Eriboll south-westwards to the Isle of Skye, this almost continuous belt is rarely more than 10 km in width. The Cambro-Ordovician sediments in northwest Scotland are believed to represent deposition on a palaeo-southeast facing, low latitude, passively subsiding continental margin. During this time Laurentia moved very little and Scotland was situated at around 25 degrees south.

Evaporite pseudomorphs have been previously recorded from the Sangomore Formation, but have recently been found to be more frequent throughout the Durness Group. Evidence for evaporites within the succession consists of quartz nodules pseudomorphed after anhydrite. Lath-shaped vugs representing growth of gypsum within the sediment, evaporite dissolution breccias, and occasional halite pseudomorphs. They often coincide with sequence boundaries, represented by an influx of well-rounded quartz sand and karstified parasequence tops.

Thin successions of evaporite pseudomorphs record relative sea-level falls on the Scottish Laurentian shelf. During the late highstand systems tract, supratidal flats prograded over intertidal deposits and provide glimpses of a coastal sabkha environment which was situated inboard of the preserved depositional site. The recognition of these

former evaporite beds allows more precise correlation with the Sauk Sequence (recognised across much of North America) and with the Cambrian Grand cycles for the first time, in parts of the succession lacking biostratigraphical constraint or other controls on correlation.