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Magnetic susceptibility of the Much Wenlock Limestone Formation (Homerian) of the English Midlands and Wenlock Edge

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Magnetic susceptibility data are presented for two composite sections from the English Midlands, spanning much of the Homerian (Silurian). Micrite samples from the uppermost Coalbrookdale, Much Wenlock Limestone and basal Lower Elton formations) were collected at 0.5 m intervals from a limestone mine, a borehole core and surface outcrops in the Dudley area, West Midlands. An equivalent set of samples were collected from outcrops along the Homerian type locality, Wenlock Edge, Shropshire. The formation generally comprises of two shallow water limestones (Lower Quarried Limestone and Upper Quarried Limestone members), separated by a deeper water nodular limestone and silty mudstone-rich interval (Nodular Beds Member). Deposited on the Midland platform, both sections are considered to span the upper *lundgreni* to *nilssoni* biozones, but are associated with mid-shelf and shelf–basin-margin settings respectively.

Detailed correlation of the Formation across the Midland Platform now involves bentonite geochemical fingerprinting, carbon isotope and integrated sequence stratigraphic studies. RAY & THOMAS (2007) and RAY et al. (2010) established a robust sequence stratigraphic framework, identifying thirteen parasequences between the base of the Much Wenlock Limestone Formation and the lower most part of the Lower Elton Formation. However specific details of the correlation between the West Midlands and Wenlock Edge and the extent to which the lower and upper boundaries of the Formation may be diachronous are not entirely clear, largely as a result of lateral facies variations between the two areas as a result of differing positions on the Midland Platform. Recent $\delta^{13}\text{C}_{\text{carb}}$ studies suggest that not all changes occurred simultaneously in the two areas, despite their close proximity (MARSHALL et al., 2009). High resolution magnetic susceptibility data are presented alongside stable carbon isotope ratios and inorganic geochemical analysis in an attempt to further refine the inconsistencies that have arisen in correlation of the formation across the Platform further.

References

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