AAPG Annual Convention
Salt Lake City, Utah
May 11-14, 2003

Neil S. Davies, University of Birmingham, Birmingham, United Kingdom

High-Resolution Paleoenvironmental Analysis in a Lower Old Red Sandstone Sequence: An Integrated Ichnological and Sedimentological Study of the Late Silurian Ringerike Group, Norway

The late Silurian Ringerike Group of southern Norway is a lower Old Red Sandstone megasequence that marks the regressive culmination of Cambro-Silurian marine deposition in the Oslo Region. It has traditionally been divided into three formations – the Sundvollen and Stubdal Formations to the north of Oslo (representing muddy coastal plain and braided fluvial deposition respectively), and the Holmestrand Formation to the south (representing fluvio-deltaic deposition). A combination of a comprehensive ichnological analysis and extensive sedimentological fieldwork has resolved many problems regarding the interpretation of the stratigraphic and paleoenvironmental relationship between the northern-most and southernmost outcrop areas. To the north, various facies dependent ichnoassemblages are dominated by epifaunal arthropod trackways, with less abundant burrows, looping traces, escape structures, and ichnofossils of uncertain origin. In contrast, the Holmestrand Formation has more diverse ichnoassemblages dominated by burrow traces and arthropod resting traces, with less abundant arthropod trackways, escape structures, and looping traces. Other biogenic structures present in both areas include microbial matgrounds, medusoid imprints, and problematic impressions. The distribution of the ichnofauna within each area is clearly facies controlled and provides new insights into the ichnological subdivision of nearshore environments. When this information is combined with sedimentological data, a detailed picture of the paleoenvironmental conditions and basin setting during deposition of the Ringerike Group can also be ascertained.