



Eustatic history of Mesozoic epeiric seas: A palynological approach

A.E. Götz (1), S. Feist-Burkhardt (2), K. Ruckwied (1), J. Szulc (3) and Á. Török (4)

(1) Institute of Geosciences, Martin Luther University Halle-Wittenberg, Germany, (annette.goetz@geo.uni-halle.de), (2) Palaeontology Department, The Natural History Museum, UK, (3) Institute of Geological Science, Jagiellonian University, Poland, (4) Department of Construction Materials and Engineering Geology, Budapest University of Technology and Economics, Hungary

During Mesozoic times the opening Tethys Ocean was boarded by shallow epeiric seas. The NW Peri-Tethys Basin of the Triassic period, the so-called Germanic Basin, covered today's Central Europe. The marine evolution after the global Permian sea-level lowstand period started with the Middle Triassic transgression via gateways that connected the Germanic Basin with the Tethys Ocean. Major third-order eustatic signals are well documented in the sedimentary record. The study of stratigraphical and lateral distribution patterns of sedimentary organic matter enables a detailed reconstruction of the eustatic history during Middle Triassic times. The southern gates of the Germanic Basin and the adjacent shelf of the NW Tethys Sea are key areas for correlation of depositional sequences of these two palaeogeographic settings. Today, outcrop sections in S Poland and S Hungary display the eustatic evolution of shallow ramp systems. Third-order depositional sequences, known from Middle Triassic series of the Northern Calcareous Alps and the Southern Alps and representing deposits of the Tethys shelf area, were detected in proximal ramp settings of the NW Peri-Tethyan realm by characteristic palynofacies signatures.

The Vocontian Basin of SE France reveals thick Mesozoic deposits. During the Upper Cretaceous, representing a global highstand period, a broad carbonate platform developed along the NW Tethys periphery. Key sections in the Rhône valley, Baronnies and Maritime Alps display sedimentary series of a palaeogeographic cross-section from the proximal and distal platform in the West to the deeper basin in the East. Palynofacies analysis enables the characterization of transgressive and highstand deposits as

well as major flooding phases within the stratigraphic record. The lateral variation of palynofacies displays the palaeoenvironmental evolution and is used for long-distance correlation.

The study of sedimentary organic matter provides additional information on sedimentary processes within a depositional system. Therefore, palynofacies analysis is a powerful tool in high-resolution stratigraphy and basin analysis, enabling one to distinguish between global-eustatic and regional-tectonically signatures, and also serving as a modern stratigraphic method in applied sedimentology.