



Eustatic signatures of an Upper Cretaceous carbonate system (Vocontian Basin, SE France): palynological and sedimentary record

A.E. Götz (1), S. Feist-Burkhardt (2) and K. Ruckwied (1)

(1) Institute of Geosciences, Martin Luther University Halle-Wittenberg, D-06099 Halle (Saale), Germany (annette.goetz@geo.uni-halle.de, katrin.ruckwied@geo.uni-halle.de), (2) Palaeontology Department, The Natural History Museum, Cromwell Road, London SW7 5BD, UK (s.feist-burkhardt@nhm.ac.uk)

During the Upper Cretaceous, representing a global highstand period, broad platform systems developed along the NW Tethys periphery. Today, carbonate series of SE France display the Mesozoic depositional history of the Vocontian Basin which commenced in early Jurassic times. So far, studies on exceptionally complete successions of this epeiric setting, spanning the late Turonian-Coniacian, are quite sparse. Key sections in the Rhône valley, Baronnies and Maritime Alps represent sedimentary series of a palaeogeographic cross-section from the proximal and distal platform in the West to the deeper basin in the East. The lateral facies distribution displays the platform morphology from coastal lagoons to basinal environments. Stratigraphical facies changes reflect the platform evolution related to sea-level fluctuations. Palynofacies analysis enables the characterization of transgressive and highstand deposits, using changes in particulate organic matter assemblages related to rising and falling sea level, respectively. Major flooding phases at a third-order scale are detected by significant variations in the composition and abundance of plankton associations within the stratigraphic record. Particularly, in the basinal setting, characterized by thick monotonous series, transgressive and highstand deposits are clearly distinguishable by palynofacies signatures. Moreover, the lateral variation of sedimentary organic matter displays the palaeoenvironmental evolution of the depositional system and is used for long-distance correlation. Thus, a platform-to-basin correlation becomes more precisely. Additionally, the recognition of high-frequency sequences in the deeper basin and the correlation of such short-term eustatic signals from platform to basin are based

on a detailed palynofacies analysis.