



Early diagenesis and chalk-chert hardgrounds in the Coniacian-Campanian of central Jordan; implications for sedimentation on Late Cretaceous shallow pelagic ramps

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Hardgrounds and omission surfaces are rare in the predominantly hemi-pelagic chalk, chert and phosphorite association that comprises the Senonian Belqa Group in central Jordan. However, hardgrounds of regional extent are described from the base of the Dhiban Chalk Member (Santonian-Campanian) in Wadi Mujib, central Jordan, and at Jibal Khureij, southern Wadi Araba that reveal a complex pattern of sedimentation and early diagenesis. The chalk-chert-phosphorite succession was deposited in a shallow pelagic ramp setting in fluctuating water depths. Chalks represent high-stands, separated by a regressive chert-rich unit (Tafilah Member). Synchronous hardground successions traced over 100 km, reveal a complex diagenetic and depositional history of early lithification, phosphatisation, penecontemporaneous deformation, submarine bioerosion, colonisation by colonial corals and/or bivalves followed by deposition of turbid detrital chalk passing up to pelagic coccolith ooze. Variations in the hardground successions are attributed to their relative position on the pelagic ramp in overall response to a third order sea-level rise.