



## **Expression of a carbonate platform drowning interval in proximal settings during the Early Bajocian (High Atlas Mountains, Morocco)**

Jan Danisch (1), Malte Mau (1,2), Alexis Nutz (1,3), Lahcen Kabiri (4), Emanuela Mattioli (5), and Stéphane Bodin (1)

(1) Aarhus Universitet, Department for Geoscience, Aarhus, Denmark (jan.danisch@geo.au.dk), (2) Department of Geosciences and Natural Resource Management, University of Copenhagen, Copenhagen, Denmark, (3) Aix-Marseille Université, CNRS, IRD, Collège de France, Centre Européen de Recherche et d'Enseignement des Géosciences de l'Environnement, Aix en Provence, France, (4) Département de Géologie, Université Moulay Ismail (UMI), Errachidia, Morocco, (5) UMR CNRS 5276 LGLTPE, Université Lyon 1, ENS Lyon, Campus de la Doua, Bâtiment Géode, F-69622, Villeurbanne Cedex, France

Shallow water carbonate platforms are sensitive archives of geosphere, hydrosphere and biosphere interactions. As a response of extreme environmental pressure, carbonate production can cease (demise event) and the platforms experience a drowning due to ongoing subsidence. The lithological expression of demise events is recorded by a drowning unconformity, often underlined by a mineralized surface, condensation or hiatus, followed by the deposition of hemipelagic, marly sediments. The pattern of establishment of carbonate platform and a subsequent demise can repeat itself multiple times in one basin, but so far, drowning-related sequences have mostly been observed as open marine facies. The most proximal part of a drowning interval, at the continental-marine transition, is rarely preserved or observed. It remains thus ambiguous how open marine drowning deposits connect to terrestrial ones, hindering our comprehension of the extent of carbonate factory shutdown.

In this study we present a transect from marginal marine to mid- to outer ramp settings of an Aalenian to late Bajocian (Middle Jurassic) carbonate platform from the Central High Atlas Basin of Morocco. The exceptional outcrop continuity allowed us to survey on a high resolution scale four sections along a 14km transect in which an Early Bajocian drowning interval is represented. Overall, marly deposits with reduced carbonate content characterize this drowning interval. These marls can be traced all along the transect and thin out towards the basin margin. Towards the edge of the basin, this drowning interval is characterized by laminated, sometimes microbial/stromatolitic limestones, interbedded with marls. This shows that the former highly productive carbonate platform was severely affected by the environmental perturbation during the Early Bajocian, as observed in other parts of the basin, but also that a small, more microbially controlled carbonate factory managed to sustain during this period.

After the drowning, the carbonate production recommenced on this platform with distinctive depositional environments, ranging from a protected lagoon, high energetic ooidal shoals, open marine inner platform settings and mid ramp environments with coral patch reefs. This continues until late Bajocian(?) siliciclastics mark the filling of the entire Central High Atlas Basin.