

Aptian shallow marine carbonate platform and Lower Albian lacustrine and fan delta siliciclastic deposits of Jebel Koumine (Central Atlas Tunisia)

Nasri, A.^{1,*}, Trabelsi, K.², El Ferhi, F.¹, Skanji, A.¹, Ben Alaya, S.¹, Houla, Y.³, Soussi, M.⁴, Kadri, A.⁵, Bouakadi, N.⁴, Sames, B.⁶, Wagreich, M.⁶

1) *Tunisienne d'Activités Pétrolières (ETAP), Tunis, Tunisia, *E-mail: ahmednasri@gmail.com*

2) *Université de Sfax, Faculté des Sciences de Sfax, Sfax, Tunisia*

3) *National Office of Mines of Tunisia (ONM), Geology Department, Tunis, Tunisia*

4) *Université de Tunis El Manar, Faculté des Sciences de Tunis, Tunis, Tunisia*

5) *Université de Carthage, Tunis, Tunisia*

6) *Department of Geodynamics and Sedimentology, University of Vienna, Vienna, Austria*

Former lithostratigraphic and biostratigraphic studies conducted on the Central Atlas Tunisia suggested an upper Aptian to lower Albian major sedimentary gap between the Aptian shallow marine carbonate platform deposits and their overlying Upper Albian widespread transgressive carbonate and fossiliferous shaly facies. This hypothesis, always advanced without direct biostratigraphic arguments, is revised in this work based on new and detailed investigations of thick (up to 800 m) exposed successions in Jebel Koumine (Sbeitla region, Central Atlas). The compilation of detailed sedimentological logging and ostracods and charophytes biozonation, allowed the characterization of the Lower Albian and the subdivision of the Koumine succession by several well-dated regional sedimentary events. These events which can be correlated with their coeval lateral facies, outcropping in other localities of central Tunisia, are briefly presented thereafter.

The Aptian deposits are subdivided into six units attesting to different depositional environments comprising subtidal, tidal-flats, evaporitic sabkha at the base and oolitic shoal, lagoonal and marginal-coastal marine conditions at the top. The ostracods and charophytes assemblies collected from these units indicate an early to late Aptian age. The overlying succession dominantly represented by continental facies is splitted into five units.

The first four units are of lacustrine, eustuarine and tidal flats depositional settings. The lowermost one, which is made of whitish varved and micritic lacustrine limestones, is rich in charophytes and non-marine ostracods indicating an early Albian age. These deposits evolved laterally, at the western part of the J. Koumine, to alluvial fan deposits represented by fine to medium-grained sandstones and numerous meter-thick conglomerates including reworked blocks derived from Triassic and Barremian rocks. The last unit corresponds to a distinctive carbonate bar made of quartz-rich vuggy bioclastic dolomite that could be ranged within the early to middle Albian.

The stacking pattern of the transgressive-regressive depositional marine and non-marine sequences of the Aptian–Albian of central Atlas Tunisia constitute an excellent example of how relative sea level fluctuations of diverse orders control facies and architecture of carbonate platform despite the impact of the local tectonics and associated halokinetics activities.