

## **Early Devonian Transgressive - Regressive Cycles of NW Africa (Anti-Atlas, Morocco; Ougarta Arch, West Algeria)**

By

Stefan Lubeseder

Oxford Brookes University, Geology (BMS), Oxford, United Kingdom

([slubeseder@brookes.ac.uk](mailto:slubeseder@brookes.ac.uk))

The Early Devonian succession has been correlated from the far southwest of Morocco along the Anti-Atlas to the Ougarta Arch in west Algeria. Two major facies successions can be recognized:

- 1) A basinal to carbonate ramp system in the Eastern Anti-Atlas with offshore muds (6 – 70 m thick), outer ramp nodular limestones (2 – 10 m thick), and outer to mid ramp tentaculite, crinoid and bioclastic limestones with some evidence of storm layers (0.5 – 5 m thick).
- 2) A mixed siliciclastic-carbonate system in the southwest of Morocco and west Algeria with offshore muds (100 - 150 m thick), brachiopod rich siliciclastics dominated by storm deposits (70 - 120 m thick), and nodular limestones (10 m thick) identical to the outer carbonate ramp facies of the Eastern Anti-Atlas.

While transgressive - regressive cycles are gradational in the carbonate ramp system, a marked transgressive surface is developed between the siliciclastic storm deposits and the limestone unit in the mixed system. Five transgressive - regressive cycles can be recognized: ED1) early Lochkovian to late Lochkovian/early Pragian; ED2) late Lochkovian/early Pragian to late Pragian; ED3) late Pragian to early Lower Emsian; ED4) early Lower Emsian to late Lower Emsian (~Zlichovian/Dalejan boundary); ED5) late Lower Emsian (~Zlichovian/Dalejan boundary) to middle Upper Emsian; ED-MD) middle Upper Emsian to earliest Eifelian.

The transgressive - regressive cycles are well defined biostratigraphically in Morocco, and due to the relative stability of the Saharan craton prior to the late Devonian this should enable the correlation with the Early Devonian succession of east Algeria and Libya, where the biostratigraphic control is weak.

This study was funded by the North Africa Research Group, sponsored by Amerada Hess, Anadarko Algeria, BG International, Burlington Resources, Edison, Philips, Repsol Exploracion S.A., and Woodside Petroleum.