

Ordovician paleogeography in north Gondwanan Moroccan Margin

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In the north Gondwanan Moroccan margin, the Ordovician sedimentation occurred in two sedimentary basins: the "Mesetian basin" including the Moroccan Meseta, the western High Atlas and the north western Anti-Atlas domains, and the "Atlasian basin" including the south western Anti-Atlas domain, the central and eastern Anti-Atlas domains and the central and eastern High Atlas domains.

During the lower and middle Ordovician period, they acted, both of them as epeiric shelves that were dominated by shifting of the subsidence centres (reactivation stage), block faulting associated some times with basic volcanic flows and eustasy. The sedimentation took place in tide and /or waves and storms dominated nearshore and shelf environments and tides and/or storm dominated deltas. The sediments are mostly siliciclastic with minor intercalations of carbonate lenses, glauconitic sand, oolitic ironstones and localised volcanic and pyroclastic rocks in the eastern Anti-Atlas (Jbel Siguenit) and coastal Meseta.

During the Upper Ordovician, the paleogeography of the two epeiric shelves was widely modified under the interplay of the glacial climate and a major extensional event. Various environments occurred: glacial fjords, marine outwash fjords, mesotidal to macrotidal estuary, high energy waves and/or storms dominated beach, waves and storms dominated delta, cold (frost dominated) peritidal mixed siliciclastic/ carbonate high energy beach, carbonate platform with bryozoan mounds, storms dominated continental shelf ice distal (muddy shelf, offshore transition zone, shoreface), tides and storms dominated temperate shelf, mixed waves and tides temperate nearshore, storms dominated temperate shoreface, fan delta and deep sea fan. The sediments are mostly siliciclastic deposits (mainly coarse sand and boulders derived from the Saharan ice sheet), oolitic ironstones and carbonate from bryozoan mounds.

Key-words : Ordovician, Morocco, Paleogeography, Upper Ordovician glaciation