AAPG HEDBERG CONFERENCE
"Paleozoic and Triassic Petroleum Systems in North Africa"
February 18-20, 2003, Algiers, Algeria

"Late Ordovician (Unit IV Interval) Reservoir Characterisation from the Ohanet/In Adaoui Fields, Algeria"

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The Late Ordovician sandstones (Unit IV) consist mainly of resedimented deposits (mass flow sediments) emplaced within a marine proglacial setting that prevailed at this time, when the Illizi Basin was positioned close to the palaeo-south pole. It is believed that the studied cored intervals represent the infill of glacial palaeovalleys, as evidenced mostly from the regional thickness variations and facies changes. The presence of a basal chaotic interval dominated by debris flows and slumps (Lower Unit IV-2) confirms the slope instability of such valleys, where several erosional events due to glacial advance and retreat took place. The lower Unit IV-2 presents a very limited reservoir potential, due to poor sorting, clay mixing and strong silica cementation.

After the initial infill of the palaeotopographies, depositional events became widespread, with the development of a thick megarippled and associated channel complex (Upper Unit IV-2). The reservoir potential is also very low, with the exception of rare, slightly more permeable intervals representing secondary channels. Abundant silica cements due to pressure-solution have reduced most of the original primary porosities and permeabilities. However, local variations have been observed, and a thick, poorly sorted sandstone unit with better reservoir quality appears in some wells, and has been interpreted as a major prograding subaqueous glacial outwash.

Finally, a shallow marine depositional system capping the top of the turbiditic complex and corresponding to a prograding coastal system (Unit IV-3) forms a thin layer of irregularly preserved cross-bedded sandstone presenting a relatively good reservoir quality.