

4th International Conference on
GEOLOGY AND GEOSCIENCE

April 27-28, 2017 Dubai, UAE

Facies analysis and depositional environments of Khabour formation from Iraqi Kurdistan region-Northern Iraq

Muhammed F Omer¹, Henrik Friis² and Thammar A Al-Shamari³¹Salahaddin University, Iraq²Aarhus University, Denmark³Baghdad University, Iraq

The Khabour formation is the oldest exposed rock unit in Iraq (Ordovician) and was studied in two sections at Chalky Nasara and Ora localities Northern Iraq. It is comprised of 806 thick sandstone-shale cyclic alternations. The formation sediment in type locality Chalky Nasara section can be divided into three main units A, B and C, depending on the kinds of sediments, vertical changes and the sedimentary structures. These three units also can be divided into numbers of main facies. Combined lithofacies/ichnofacies analysis of the Khabour formation allows recognition of 8 facies associations from type locality and subdivided into 23 facies. The prodelta deposits are mainly characterized by heterolithic strata (wavy and lenticular bedded), the trace fossils assemblages is dominated by deposits-feeder burrows skolithos *Thalassinoids isp*, *Planolites isp*, and *Macaronichnus. isp*. The delta front deposits consists of (planar cross-bedded, thick-bedded, very large scale and tabular cross-bedded) sandstone facies. Wave and storm dominated deposits are found in Khabour formation, including sands deposited by storm-generated, wind driven currents, by low to high intensity oscillatory flows, and by storm-initiated density flows, which deposits upper, middle and lower shoreface. Changing of sea level during (TST) coupled with upwelling currents created starved settings which was favorable for the deposition of thin to medium bedded of phosphatic sandstone associated with a black shale pristine phosphorite in Chalky Nasara section. Lowering of wave base during relative sea-level fall reworked pristine facies into granular deposits and produce phosphatic large-scale planar cross-bedded sandstone in Ora section. The age of the formation is determined according to recognize three ichnotaxa of cruziana including *Goldfussi*, *Furcifera* and *Rugosa Isp*. This reflects upper tremadocian stages of lower ordovician for the formation.

Biography

Muhammed Fakhri Omer is a Lecturer at the department of geology, Salahaddin University in Erbil, Iraq since 2004. He has done M.Sc. in 2000 and Ph.D. in 2012 from Baghdad University, Iraq. In 15h January 2017 promoted to Assistant Professor at the same University. His Major filed of interests is sedimentology and sedimentary petrology with particular reference on Paleozoic formations exposed in northern Iraq. He is Expert in cathodoluminescence and scanning electron microscopy that was obtained through three months training course at Aarhus University in Denmark in 2011. He got Postdoctoral scholarships for one year at Warsaw University –Poland in 2014. He has published many papers in the Journal of African Earth Science in 2014 and 2015 and paper in the Arabian Journal of Geosciences in 2016. He has awarded Certificate of Reviewing on August 2016 from Journal of African Earth Sciences (ELSEVIER). In January 1st of 2017 became a member of the new project IGCP 635 the Onset of the Great Ordovician Biodiversification.

muhfakhri2005@gmail.com

Notes: