Khalid A Almalki et al., J Geol Geosci 2015, 4:3
http://dx.doi.org/10.4172/2329-6755.S1.002

OMICS International
conferenceseries.com

International Conference on
Geology

June 22-23, 2015 Florida, USA

Role of climate on sediment deposition: A study of Cambrian-Ordovician, Tasmania, Australia

Khalid A Almalki[1] and Syed A Mahmud[2]
[1]King Abdulaziz City for Science and Technology, KSA
[2]Monash University, Australia

Late Cambrian–Ordovician sequences in Tasmania represent an excellent analogue for understanding the climatic controls over processes active during deposition of sediments. The paper presents and discusses the role of palaeogeography and climatic conditions on the depositional processes and styles in a broad range of depositional settings including alluvial fans, braided fluvial, intertidal and shallow marine environments. This research was undertaken using conventional sedimentary facies analysis technique, in which several lithofacies were identified and facies associations were analysed to evaluate depositional processes and environments. Although the exact position of Tasmania in the Late Cambrian remains debatable, broad palaeogeographical reconstructions indicate that it was located on the eastern margin of the Gondwana landmass and situated north of the palaeoequator. The Late Cambrian palaeoclimate reconstruction is complicated due to large uncertainties regarding atmospheric composition, palaeogeography and terrestrial conditions, but it can be inferred that in the Late Cambrian through much of the Ordovician the climate was tropical with warm sea waters and was influenced by an extended greenhouse period with rising and considerably high sea level throughout the Palaeozoic Era. Five broad facies associations have been identified, these include alluvial fans, braided fluvial, intertidal, shallow marine and sheet flows. There is a strong influence of palaeoclimate on the depositional processes and resulting stratigraphic build-ups. The depositional styles of similar aged sediments studied globally, are markedly different from their present day depositional analogues, mainly due to unique parameters controlling the overall depositional style such as climate, vegetation state and global sea level conditions.

Biography

Khalid A Almalki completed his Ph.D. at the age of 34 years from Monash University, School of Geosciences. He is the Director of Numerical Modeling Unit at King Abdulaziz City for Science and Technology (KACST).

kmalki99@gmail.com

Notes: