Facies analysis of the Late Eocene deep-marine middle- to outer-fan sequence of the Crocker Formation in Tenom District, Sabah, Malaysia

ABSTRACT

The Crocker Formation, Late Eocene to Middle Miocene in age, was deposited in a deep-marine environment by a turbidity current. Most of the facies identified in the field are related to the sedimentary bed-form structures belonging to Bouma sequences. These prominently include unit divisions such as Ta referring to grading sand, Tb for parallel laminae, Tc for cross laminae, Td for mud laminae, and Te referring to hemipelagic mud. Five facies have adequately been identified using Bouma sequence implications, namely Facies 1 (F1: Ta -Tb layers), Facies 2 (F2: Ta -Te layers), Facies 3 (F3: Tb -Te layers), Facies 4 (F4: Tb / Tc -Te layers), and Facies 5 (F5: Td -Te layers). Based on the Crocker Formation facies analysis, three distinct groups of facies associations were recognised: Deep-Marine Channel-Lobe Association (Type A1), Deep-Marine Channel-Levee Association (Type A2), and Distal Lobe Association. These facies associations precisely revealed that the Crocker Formation's depositional environments were likely deposited in the middle-fan with associated outer-fan settings.