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 T_a referring to grading sand, T_b for parallel laminae, T_c for cross laminae, T_d for mud laminae, and T_e referring to hemipelagic mud. Five facies have adequately been identified using Bouma sequence implications, namely Facies 1 (F1: T_a-T_b layers), Facies 2 (F2: T_a-T_e layers), Facies 3 (F3: T_b-T_e layers), Facies 4 (F4: T_b / T_c-T_e layers), and Facies 5 (F5: T_d-T_e 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.