

Linking onshore to offshore in Myanmar: Predicting sediment input through time using tectonostratigraphy, paleogeography, provenance & drainage studies

Enrico Santoro¹, Steven Beynon¹, Thomas Coates-Harman¹, and Andy Racey²

¹CGG Services (UK) Limited, Llandudno, United Kingdom

²Geoscience, Whitehill, United Kingdom

ABSTRACT

Plate tectonic analysis, detailed satellite structural mapping, DEM-based drainage morphotectonic analyses, provenance and exhumation data have been combined into an integrated workflow in order to generate predictive models for the distribution and likely reservoir quality of clastic sediments in the Rakhine, Moattama and Tanintharyi areas, offshore Myanmar, and for several stratigraphic intervals within the Cenozoic. A solid understanding of the geodynamic evolution of the study area forms a fundamental input to any sediment source to basin study. This is particularly true when dealing with the Burma Platelet where the Cenozoic evolution is complex and involved collision with the Indian and Sunda plates. This collision event resulted in hundreds of kilometers of dextral displacement, initially along the Shan Scarp Fault System and, from the Late Miocene, on the Sagaing Fault and other N-S, high-angle dextral faults cutting through the Indo-Burman Ranges (Kabaw, Lelon, Kaladan and Chittagong Coastal Faults). An accurate understanding of the total dextral displacement accrued across these fault systems is an important input into any drainage and paleogeographic models, and for the subsequent prediction of reservoir distribution and quality through time for the offshore. The constraints provided by neighboring plates also need to be taken into account in order to avoid excessive plate overlap or unlikely motion in the regions bordering the main study area. The entire collisional margin has been reviewed (from the western Himalaya to the Shan Plateau), and has included reviews of: (1) paleo-magnetic and paleo-rotation data, (2) exhumation histories, and (3) timing, kinematics and displacement of the main tectonic lineaments.