

Examples of Diverse Geomorphology of Petroleum Systems Influenced by Volcanism along Sunda Subduction Trench, Offshore Myanmar

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ABSTRACT

The volcanic arc in the Gulf of Moatama, Myanmar has been suspected for years of its hydrocarbon accumulation potential in respective sequence of clastic and carbonate formations, and volcanic structures, following an early exploratory drilling by the national oil company in the early 1990s. The arc is aligned in the north-south trend along the Sunda subduction trench, where the Indian and Sunda continental plates collided in the Indian Ocean. Based on an early gravity survey, a broad overview of volcanoes activities of Sunda subduction trench was noticed. With a recent exploration and delineation drilling campaign piloted in 2005, drilling results presented a significant petroleum system in relation with volcanism. Different carbonate-volcanic facies were encountered. However, the system is a lot more complex than earlier thought, likely due to the volcanism and magma processes. It appeared the subsequence of eruption, de-conformation, and diagenesis processes due to intrusion of hot fluid during active volcanic periods played a key role in petroleum processes. The complicity in geomorphology of the area made the previous exploration unsuccessful and unlikely to formulate a conceptual development given uncertainty in geological setting. This study is intended to present the process that provides an in-depth evaluation of geomorphology and qualitative prediction of rock properties.