

## **CARBONATE BUILD-UPS ON VOLCANIC HIGHS SOUTH OF JAVA**

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During the mid Oligocene, an east-west trending volcanic island arc developed south of Java, lying at a tangent to the southern edge of the Sunda Platform, which curved away to the northeast.

The volcanic arc lay close to the continental edge in westernmost Java, but lay progressively further from it, in deeper marine environments, in an easterly direction. As the axis of volcanic activity progressively shifted to the north, in Lower and Middle Miocene time, the remnant volcanic highs formed potential areas for carbonate development. These volcanic highs were of varying sizes and patterns. Some were subaerial, and thus contributed erosional volcanoclastics to the carbonates; others remained submerged in shallow water allowing reef carbonates to develop, while some were deeper, permitting only skeletal biostromal carbonates to accumulate. One of the last types was drilled in 1972-3 by Djawa Shell, using the deepwater rig, Sedco 445. The carbonates that were encountered proved to be of excellent potential reservoir quality, but contained no hydrocarbons. Although samples are poor, three depositional facies, all non-reefal, can be recognised. The vertical sequence displayed by these facies indicates a progressive deepening of the environment of deposition. The carbonates in contact with the volcanics at the base of the sequence, are completely dolomitized and it is argued empirically that dolomitisation is due to the proximity of the volcanoclastic sediments. The cessation of carbonate sedimentation is shown to be due to 'drowning out' of the platform, to depths below carbonate deposition. The carbonates are capped by much younger deep-water marine sediments, deposited after the guyot formed by the subsidence had been overlapped by foresetting clastics derived from the Java axis to the north.

Facies analogous to the drilled carbonates are found outcropping in South Java.

## **THE SUBIS LIMESTONE COMPLEX — SARAWAK, MALAYSIA**

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The Subis Limestone complex is situated about 60 miles south of Miri and just north of the Niah river in Sarawak, Northwest Borneo.

The complex is of triangular shape with side lengths of approximately 3 miles. The maximum measured thickness of limestone is about 1000 feet. These limestones form vertical escarpments and have a strongly developed karstic surface. Caverns are very common, the largest being the Niah Cave.

The complex is situated on the culmination of a northeast-southwest trending anticline that is reverse faulted along the fold axis. The southeastern part