

Early Diagenesis of a Holocene Reefal Terrace Merak-Anyer Area
Northwest Java Island, Indonesia

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The shoreline of the northwestern coast of Java Island is fringed by a terrace of holocene reefal deposits. These deposits are made of massive and finger coral bioherms and of coral debris accumulations. This show

early diagenetic phenomena as observed in the field and drill-core samples.

Three distinct zones corresponding to distinct hydrologic regimes with different prevailing diagenetic phenomena are observed. These are:

- . An inner zone adjacent to the coast, characterized by thin (? 1 m) fossil coral deposits. These cap holocene bay fill deposits. Corals are still aragonitic in spite of their age (7000-5800 years BP) and only a slight dissolution is observed in the vadose zone. Micritization and blocky sparitization are observed in the reefal terrace i.e. in the phreatic and the lowermost part of vadose zones, the blocky calcite, locally giving way to 'pisolites'.
- . A tidal flat and mangrove marsh located along the mouth of a small river and invaded by brackish waters at high tide. The aragonitic corals show a micritization of their surface and partly of their septae.
- . A coastal area, where the coral accumulations are the thickest (2 to 4.50 m) and partly observable as small outcrops. Micritization of the coral surface and traces of dissolution are observed in both phreatic and vadose zones. The micritic cement seems to require a quite permanently 'wet' condition (most probably an active marine phreatic zone).

Fine calcitic sparitization and blocky calcite occur in the vadose zone. Blocky calcite is also present within the bioclastic sands, above the reefal terrace. But there, a vadose origin is not proven, and a recent marine diagenetic environment is possible.

This study indicates that early diagenesis can strongly affect recent and near shore sediments. This observation underlines the importance of all unconformities, even minor ones, which can occur in carbonate reservoirs.

The reservoir characteristics of a carbonate sediment may be influenced by the diagenesis in its very early depositional history.
