

Palaeoenvironment of the Subis-Ulu Niah area,
Sarawak

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The Subis-Ulu Niah area is mainly underlain by the Setap and the Nyalau Formation which are dated to be from Late-Oligocene to Early-Miocene. The Subis member of the Tangap Formation is found to the north of the mapped area. The sedimentary rocks of the Subis-Ulu Niah area were deposited in a shallow marine environment.

The Nyalau Formation predominantly consists of silty fine sandstone whereby laminations and intense bioturbation are the two most prominent sedimentary features. Other lithologies include massive fine sandstone, nodular mudstones and silty mudstone. Lenticular beds are common too. These lithofacies indicate a near shore low energy environment with tidal influence. Palaeontological evidence with respect to foraminifera and trace fossils support this interpretation.

The Setap Formation consists predominantly of mudstone (shale), subordinate siltstone and sideritic concretions. These concretions form extensive continuous bands imparting pseudobedding characteristics. Evidence from trace fossils, foraminifera and its relations to the laterally equivalent Nyalau Formation and the Subis member support that the Setap Formation in the mapped area was formed within a lagoonal setting whereby the water depth is about 60-100 m. The silty bands in the mudstone (shale) indicate that the depositional environment was calm, affected only by occasional storm. The bioturbation features preserved in the concretions indicates a non-euxinic condition.

The Subis limestone consists predominantly of large benthonic foraminifera, coralline red algae and hermatypic corals. The lithologies range from wackestone to grainstone. The Subis limestone is interpreted to have been formed as a shallow water biohermal mass, in a warm tropical sea.
