
Tectonic evolution of Sabah, Malaysia

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Southeastward subduction of an oceanic lithosphere in front of the rifted continental block of southern China under an emergent oceanic basement in the eastern part of Sabah controlled the development of an elongate basin trending NE-SW. This basin became the site for the deposition of middle Eocene - early Miocene sediments.

Active opening of the South China Sea basin in NW-SE and N-S directions during the middle Oligocene - middle Miocene caused further subduction and narrowing of the basin. As a result the middle Eocene - early Miocene sediments were compressed into a fold-thrust belt trending approximately NE-SW in the western part of Sabah and NW-SE in the northern and eastern part of Sabah. The subduction was accompanied by volcanic activity in the eastern part of Sabah during the early-middle Miocene.

The deformed sedimentary pile and underlying oceanic basement were then subjected to a NW-SE extension related to the opening of the Sulu Sea basin during the early-middle Miocene. This resulted in the development of extensive chaotic deposits in the eastern and central part of Sabah. This extension also controlled the development of several circular basins for the deposition of the thick, early-late Miocene sediments. Continued extension in this region resulted in further southeastward subduction in southeastern Sabah producing the late Miocene-Quaternary volcanics.