

# Tectonics and Relative Plate Motions Around the Andaman Sea and Sumatra

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In the Andaman sea, a back-arc basin of the northern Java (or Sunda) trench system, the detail structure of ridge-transform-ridge (R-F-R) system has been inferred by compiling data of recent seismic activity and their focal mechanisms etc. (e.g., Eguchi et al., 1979; Eguchi, 1991). We first review research works motions for the areas around the Andaman Sea and Sumatra. Next, we revise the previous seismotectonics models and relative plate motions for the areas concerned, using available up-to-dated tectonic slip vectors derived from both seismic slip data and GPS surveys such as GEODYSSSEA project. In addition, we utilize recent marine survey data focused on the R-F-R system in the Andaman Sea.

A linear trend of shallow earthquakes, roughly separating the Andaman sea into western and eastern parts, clearly consists of several tectonic segments of the R-F-R system. In the central basin of the Andaman Sea, we revealed several oblique spreading ridge segments. Some of the R-F-R segments in the Andaman Sea were precisely confirmed by a recent marine survey. However, the locations of both the northern and southern continuation of the Andaman sea rift system are not well identified, partly because of less information of detailed characteristics of active fault systems in the areas. An active right-lateral strike-slip fault divides Sumatra into at least two blocks. This arc-parallel fault in Sumatra continues to the back-arc opening system in the Andaman Sea.

We carefully investigate the slip directions at previously hypothesized plate boundaries, based on both the seismic events and GPS surveys, to resolve the relative plate motions around the Andaman Sea and Sumatra.