

Swarms in Andaman Sea, India – a Seismotectonic Analysis

Basab MUKHOPADHYAY and Sujit DASGUPTA

Geological Survey of India, Kolkata, India
e-mail: basabmukhopadhyay@yahoo.com (corresponding author)

A b s t r a c t

The seismotectonic characteristics of 1983-1984, 1993 and 2005 swarms in Andaman Sea are analysed. These swarms are characterised by their typical pulsating nature, oval shaped geometry and higher b values. The migration path of the swarms from north to south along the Andaman Spreading Ridge is documented. While the first two swarms are located along existing mapped rift segments, the 2005 swarm appears to have generated a new rift basin along 8°N . The analysis and supporting evidences suggest that these swarms were generated by intruding magmatic dyke along the weak zones in the crust, followed by rifting, spreading and collapse of rift walls. CMT solutions for 2005 swarm activity indicate that intrusion of magmatic dyke in the crustal weak zone is documented by earthquakes showing strike slip solution. Subsequent events with normal fault mechanism corroborate the rift formation, collapse and its spreading.

Key words: earthquake swarm, Andaman Sea, plume, dyke intrusion, rift.