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Source parameters of the Bay of Bengal earthquake of 21 May 2014 and related seismotectonics of
85°E and 90°E Ridges

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Abstract

Source parameters of the Bay of Bengal earthquake of 21 May 2014 have been studied using full waveform inversion. Its source mechanism thus determined the orientation of the strike slip faulting as NW-SE/NE-SW. The occurrence of past earthquakes along the NE-SW nodal plane suggested its preference as the main fault which could result from the transmission of stresses from the Indian plate boundary. High stress drop of this earthquake (216 bar) is attributed to its location in the intraplate region, strike slip faulting and focus in the colder upper mantle. Comparison of the stress drop of deeper focus Hindukush earthquakes with that of the Bay of Bengal earthquake showed a smaller felt radius due to fractured lithosphere in the Himalayas vis-a-vis more efficient propagation of seismic waves in the peninsular region from the source region of this recent earthquake. The seismological evidence presented for the 85°E and 90°E ridges shows the predominance of strike slip faulting with thrusting on both the ridges. Integrating their source mechanism with that of the May 2014 earthquake, it could be inferred that the Bay of Bengal region (excluding Andaman Sumatra subduction zone) is characterised predominantly

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