



Recent seafloor deformation at the 26 December 2004 Indian Ocean earthquake rupture zone: results from the HMS Scott 2005 survey

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The 26 December 2004 Mw 9.3 Sumatra to Andaman Islands subduction zone earthquake was the second largest earthquake recorded. The tsunami generated by the earthquake caused the loss of ~300,000 lives and devastation of many Indian Ocean coastal communities. The Royal Navy's HMS Scott conducted a bathymetric survey over the rupture zone during early 2005. This is the first time a high resolution deep-water seafloor survey has been carried out so soon after an earthquake of this magnitude. Existing geophysical data in the earthquake rupture zone are rare and therefore the general subduction zone structure is poorly known. Data were collected in the southern and initial part of the rupture zone offshore Sumatra, including the plate boundary and lower accretionary wedge, the southern termination of the earthquake rupture and probable segment boundary, and parts of the forearc basin and outer arc high system. The data reveal the gross morphology of the margin and details of the structural geometry and ongoing sedimentary processes. Initial results indicate a number of youthful tectonic and slope failure features within the lower part of the accretionary wedge.