



Effects of the subducting Investigator ridge, offshore Indonesia

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At convergent plate boundaries the structure of the subducting oceanic plate is one of the key factors which govern the development of the whole subduction zone. It effects the size and position of the seismogenic zone as well as the structure of the accretionary prism, the structural style of the outer high and the sedimentary thickness in the fore-arc basins.

We are presenting results of a wide-angle seismic experiment which was conducted in August 2006 on board of the German research vessel Sonne. The profile has a total length of 200 km and is situated parallel to the deep sea trench offshore the island of Siberut (Indonesia). In this area the Investigator Fracture Zone is subducted at an oblique angle of 70 degrees below the Indonesian island arc. Seaward of the deformation front a MCS-profile shows that the topography of the oceanic basement has a variability of up to 2 km.

To investigate the effects of this variable topography onto the subduction zone, we applied a combined reflection and refraction tomography on the available wide-angle data. The results give insights into the distribution of the seismic velocity within the accretionary prism. Further on, we are able to map the deeper structure of the down-going oceanic plate.