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Structure of the subduction zone south of Taiwan constrained by OBS data

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Along the Manila trench the oceanic part of the Eurasian plate, i.e. the South China Sea (SCS) basin, is subducting eastward under the Philippine Sea plate. The Manila trench terminates in the north offshore southern Taiwan, where the subduction is impeded by the collision between the Luzon arc and the Eurasian continental margin which have built the Taiwan orogeny. The subduction zone structure at the ocean-continent junction south of Taiwan is so far unknown because of the lack of in-situ sampling. We have conducted OBS experiments in this region during 2009 – 2011. Events with M > 2 were relocated to better delineate the crustal and slab structure. We carried out tomographic inversion for Vp, Vs, and Vp/Vs and examine several topics including (1) whether the mantle wedge is warmer because it is exposed laterally to the asthenosphere to the north, (2) whether the forearc wedge is serpentinized, and (3) whether the impact of the collision on the subduction zone is significant.