



A combined tomographic inversion of two independent amphibious networks in Costa Rica

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The subduction zone structure and related processes have been investigated with local earthquake tomography in Central Costa Rica. Two data sets of 3044 high quality events from two independent adjacent amphibious networks, JACO and QUEPOS were combined for a simultaneous inversion of hypocenter locations, 3-D P-wave velocities and V_p/V_s ratios. The problem of lack of the resolution at the intersection of the two networks was solved by a spatial overlap of the data, which is supposed to provide an improved interpolation. The synthetic tests confirm the reliability of the solutions and indicate that the study area is well constrained down to 60 km depth. Depending on the results, the seismicity of the Wadati-Benioff zone decreases from northwest to south east Costa Rica. Plate interface seismicity extends from 12-20 km below sea level and interplate seismicity begins downdip of the plate interface which correlates with the intersection of the slab and the continental Moho which corresponds to 35-40 km depth. Crustal earthquakes occur at the edges of the low velocity zones.