



Interrelated changes of the lithospheric structure, volcanism and stress regime in the Central American subduction zone

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The Nicaragua/Costa Rica margin is characterized by pronounced lateral changes from north to south such as a decreasing dip of the slab, a decreasing magma production and a shift in the volcanic front. To investigate this transition, a joint on- and offshore local earthquake tomography is performed. High resolution P- and S-wave tomographic images and hypocenter locations provided such informations about the changes from north to south at the Nicaragua/Costa Rica margin respectively: 1) shallowing of the cold and dense slab, 2) decreasing of the anomaly of the hydration at the mantle wedge corner which also coincides with the borders of the Sandino basin, the jump in the active volcanic front and most probably the southern termination of the Chortis block, 3) a decrease of partial melt and 5) a crustal thickening. All these features are interpreted as the result of different stress regimes of the overriding plate from north to south and different amount of water infiltrated down to several km depths. The Nicaraguan margin is believed to be influenced by the extensional forces, which could explain the sharp transition between the Nicaraguan and northern Costa Rican margins.