



Seismicity pattern along the north Ecuadorian active margin

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Along the North Andean plate boundary four large thrust earthquakes occurred during the 20th century. So far, the seismic cycle and the energy release in this region are not well constrained and also structural features like the slab dipping are still debated. The **ESMERALDAS** experiment was conducted from 10 march to 14 june 2005, to locate the seismicity in the interplate seismic zone and active faults in the forearc region. During this experiment, located in the Esmeraldas region (north Ecuador), 31 land stations and 26 OBS (Ocean Bottom Seismometers) were deployed simultaneously. We locate recorded events using different velocity models according to geological and topographical areas. The velocity models used were derived from wide-angle seismic profiles across the north Ecuadorian margin, and from a global earth velocity model. Our results show that the Updip Limit (UdL) of the seismogenic zone is located at a shallow ~ 10 km depth, 40 km east of the trench. We observe the slab dips eastward with an angle of $\sim 35^\circ$ from the trench down to 100 km depth beneath the western Cordillera. We note the presence of earthquakes immediately west of the trench and propose that it shows the initiation seaward of a new thrust zone west of the trench. We also obtained focal mechanisms and we interpret them in term of local tectonic of the north Andean bloc and local state of stress. A correlation between the seismicity distribution and the heat flux will be attempted.