Preliminary logging results from the ODP Leg 205 in Costa Rica Margin

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Costa Rica margin is an important area for studies of the seismogenic zone and subduction factory. Building on Ocean Drilling Program (ODP) Leg 170 coring and logging while drilling (LWD) at the same sites, Leg 205 drilled three sites to determine the igneous and alteration history of the upper most part of the down going plate, to characterize the hydrological regime above and within the decollement, and to install long-term borehole observatories to monitor downhole pressure and temperature and sample fluids and gases.

Highlights from the results include successful installation of two of the four planned CORKs at basement zone of down going plate and decollement zone of deformation front"s arcward, coring and logging of thick basement zone where pore water results indicate strong seawater signal, selective coring of decollement zone and its above where pore water geochemistry shows deep sourced fluids, and finding of an exceptionally thick Central American ash layer.

Preliminary results from the post-cruise logging data processing and interpretation will be discussed thoroughly. Fracturing in gabbros beneath the sediments of down going plate were crucial to set the depths of the OsmoSamplers of CORK at Site 1253A for long term monitoring, and detailed analysis on Formation MicroScanner and combined logs enhanced the understanding of structural process of this particular region. Due to the scattered paleomagnetic intensity results from the core measurements, magnetic field strength recorded by the General Purpose Inclinometry Tool (GPIT) becomes important data set to trace the processes of magmatic differentiation, cooling of lava and alterration.

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