



regressive surface. Resting on this surface are fine grained sandstones embedded in marls and displaying wave ripples. This transgressive systems tract is covered with coarsening and thickening upward deltaic deposits over a maximum flooding surface. Therefore this prograding package of the Mancora Fm is interpreted as a highstand systems tract. Within the Mancora Fm a deep erosion surface occurs separating the previous HST from coarsening upward alluvial strata, which are interpreted as a lowstand incised valley fill. Resting on this lowstand systems tract, estuary of tidally-controlled sedimentation develops into a fining-upward transgressive systems tract. The Heath Fm is developing above this transgressive systems tract and consists in seaward stacking pattern of shallowing upward parasequences. Hence we interpret it as a highstand systems tract. This arrangement is interrupted by sediment gravity flow deposits exhibiting clasts of the Mancora Fm. Hence this lowstand shelf-perched is controlled by base level fall and interpreted as a falling stage systems tract. It is overlaid by the prograding Zorritos Fm which is incised then overlapped by the Cardalitos Fm.

#### **4. Conclusions**

The structure of the Tumbes can be clearly defined as an extensional forearc basin. Extensional structures are linked to a plurikilometric scale tilted block associated with southeast dipping border fault of the Peru Bank, and consist of gravitational proximal raft structures the leading normal faults of which are branched onto the Heat décollement. This structural framework is superimposed on the sequence architecture. Most of the raft structures are younger than the Middle Miocene erosional event. This may basically change the topography of the shoreline region which tends to become steeper. As a result, the transgressive systems tract of the Cardalitos Fm is directly overlapping the Middle Miocene subaerial unconformity whereas preceding subaerial unconformities were overlapped by lowstand systems tracts. Therefore, the morphology of the Tumbes basin changed from a shelf setting basin in the Oligocene-Lower Miocene to acquire tectonically-controlled ramp configuration after the Middle Miocene.

#### **References**

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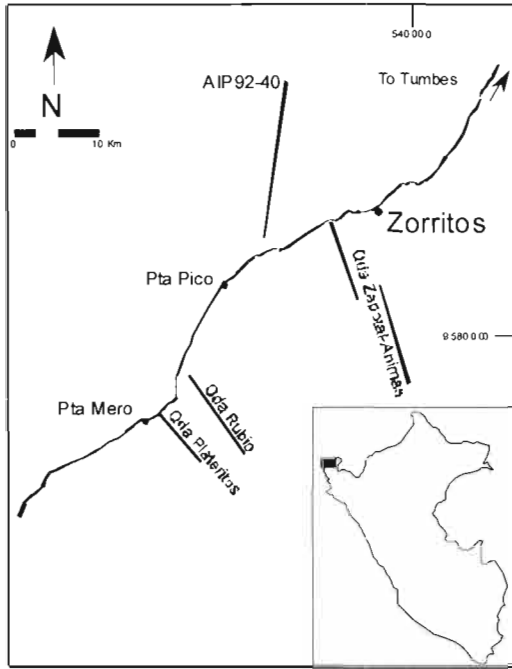


Figure 1. Location map of the Tumbes basin

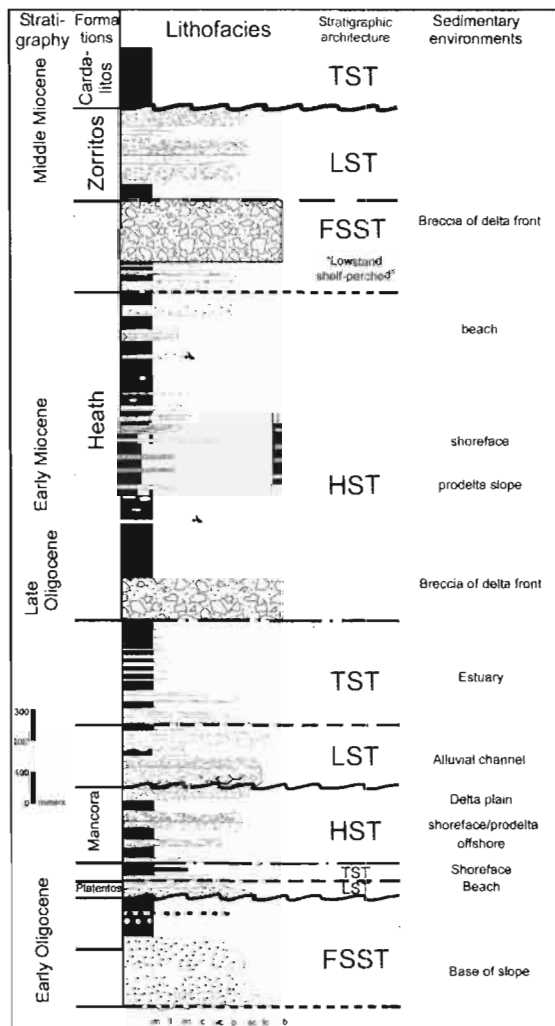


Figure 2: Synthetic stratigraphic column of the Tumbes basin

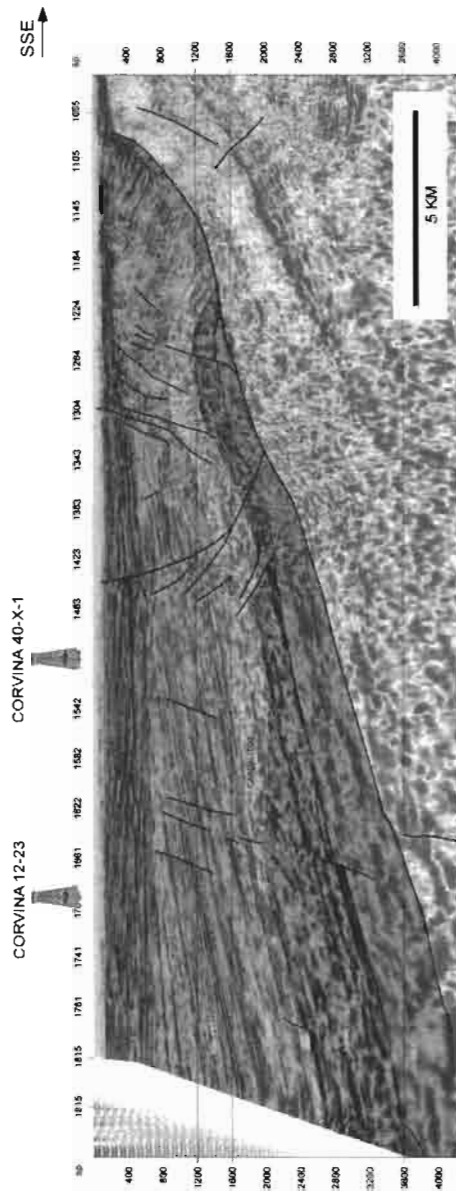


Figure 2: Seismic section AIP92-40 displaying the proximal part of a raft structure (location on fig.1).