IN-SITU STRESSES IN DEEP WATERS, CAMPOS BASIN, BRAZIL

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To estimate in-situ stresses on Campos Basin, we analyzed 352 leakoff tests and 10 acoustic logs. The Leakoff Tests (LOT) were performed from 500 to 4500m with water depths from 400 to 1200m. The LOT pressure increases directly with depth and lithology, but inversely with the wellbore size. The highest LOT gradient was observed on limestones. Rock mechanical properties affect the stress at subsurface. The acoustic logs show that shales above well known marker are weaker than below it. The sandstones are poorly consolidated leading to sanding problems when put in to production. A Normal Fault Regime(SvSHMAXShmin) dominates the shallowest portion until 1500m. Between 1500 and 3500m data are not conclusive. Below 3500m SHMAX becomes larger than Sv, characterizing a compressional setting, a Strike-Slip Fault Regime (SHMAX Sv Shmin). The shallow section is consistent with a weak material that just sustain its own weight, characterizing a gravitational setting. The water depth is the principal control on LOT in those weak rocks. The unconsolidated clays turn to brittle shale at depth and the deepest tests indicate strong material that could carry very large stress differences. Those observations lead us to a stress model where the regional stress field is felt on the deeper and overconsolidated portion, but local stresses, as those gravitationally induced by the free surface of continental slope, play a more important role at shallow level.