

MODELLING SALT TECTONICS IN PASSIVE MARGINS

1GARCIA, S.F.M., 1SZATMARI, P., 1GUERRA, M., 1PEQUENO, M. and 2MARTINS NETO, M.A. 1PETROBRAS, Rio de Janeiro, Brazil; 2UFOP, Ouro Preto, Brazil.

During the final part of the Aptian, a period of intense aridity with restricted water inflow provided conditions for the fast deposition of a very thick evaporitic sequence. Salt Tectonics was conditioned by the relatively ductile rheologic behavior of the evaporites and the gravitational instability of the East Brazilian Continental Margin, with differential subsidence and post evaporitic sedimentary progradation. Salt Tectonics took place in a complex deformational environment, which we modeled by five experiments of increasing complexity. Each experiment started with an articulated experimental box with an irregular base, covered by a uniform polymer layer and syn-kinematic sand layers prepared to simulate the evaporites and their overburden. Complex flow directions were induced by differential tilting of the model base. Extensional, compressional and strike-slip domains and different structural provinces developed in function of the major controls imposed on the experiments: (a) the irregularities at the base of the sand box, (b) the initial shape of the polymer layer, (c) the position of the slope edge, and (d) the sedimentation rates. The gravitational deformation was documented photographically. The 3-D visualization of last experiment allowed us to image better complex features that had not been adequately sampled by the photographic record, such as transfer and accommodation structures, rotation of extensional overburden structures, and regional structural pattern.