Intraplate Stresses in the Continental South American Plate: Data Compilation

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Stress directions in the South American plate reveal some correlation with absolute plate motion (HS2-NUVEL1). A regional, long wavelength component of the stress field can be observed in most of the continent, which can be interpreted as due to the plate driving forces.
Compressional horizontal stresses and strike-slip regimes predominate, but at the Andean plateau a vertical stress component prevail, causing normal fault systems. Near E-W strike of horizontal stress is recognized in middle plate zones by focal mechanisms techiques; in the Andean region the stresses are perturbed by spreading effect of the plateau; in the Amazon basin and Northern Brazil coast, the orientation of maximum horizontal stress changes because of local crustal loads.
Large deviations are observed along the Atlantic coast, where local flexural stresses in the continental shelf can overcome the regional stress.

An updated focal mechanism data base is presented and analyzed. Published moment tensor solutions were checked for consistency with teleseismic P-wave first motion. Focal mechanisms of close by events were inverted to obtain the stress tensor. TLRS and DORIS strain rate data is compared with the horizontal stress field.