

# Focal Mechanism Database for South America

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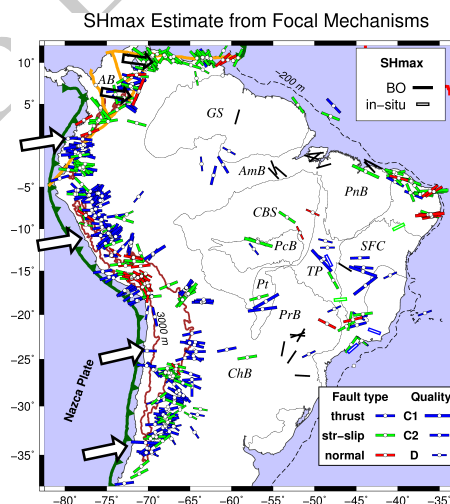
## Abstract

This work aims the compile of earthquake focal mechanisms and other stress indicators in Brazil and the sub-Andean region. Most events in the sub-Andes show reverse or strike-slip mechanisms.

Focal mechanisms in Brazil are reverse, strike-slip and normal faulting. Groups of focal mechanisms for nearby events were inverted for the stress tensor. In the sub-Andes, stresses are compressional with the principal major compression (S1) E-W, on average.

A slight rotation of S1 is observed, controlled by the orientation of the Andean plateau. In the sub-Andes the intermediate principal stress (S2) is also compressional, a feature not always reproduced in numerical models in the literature. In mid-plate S. America stresses vary in nature and direction. In SE Brazil and near the Chaco-Pantanal basins, S1 is oriented roughly E-W with S2 approximately equal to S3. This stress pattern changes to purely compressional (compressional SHmax and Shmin) in the São Francisco craton.

A rotation of SHmax from E-W to SE-NW is suggested towards the Amazon region. Along the Atlantic margin, the regional stresses are affected by coastal effects (due to continent/ocean spreading stresses as well as flexural effects from sediment load at the continental shelf). This coastal effect tends to make SHmax parallel to the coastline and Shmin (usually S3, extensional) perpendicular to the coastline. Few breakout data and in-situ measurements are available in Brazil and are generally consistent with the pattern derived from the earthquake focal mechanisms.



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