



## **Constraining the Present-Day Kinematics of the South America Plate using Space-Geodetic Solutions**

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The South America continent is formed by many tectonic blocks forming one of the most complex active tectonic settings in the world. The contact between stable South America and other major tectonic units (from south: Antarctica, Nazca, Cocos, Caribbean) in the western and north western part of the continent produces highly active seismic regions that has produced some of the most destructive earthquakes in historical and recent past. The complexity of this system is also amplified by the interaction between the major tectonic plates and some small tectonic blocks (e.g., North Andes, Panama, Altiplano) and orogens areas (e.g., Peru, Puna-Sierras Pampeanas).

We present a revised estimation of the present-day angular velocity of the South America plate derived from CORS (Continuously Operating Reference Stations) GNSS (Global Navigation Satellite Systems) observations. For this, we use stations installed all over the considered stable part of South America, namely stations part of the IGS (International GNSS Service), Geored (Ingeominas) and IBGE (Instituto Brasileiro de Geografia e Estatística) networks. These networks provide us with a sufficient large number of stations ( $\sim 100$ ) to determine a very robust estimation of the velocity field for most of South America.

The estimated angular velocities are computed with respect to the latest global reference frame, ITRF2008. We compare our estimated model with other estimations based also on geodetic and geophysical/geological data to show the consistency of the predicted motions. We use the estimated angular velocity solutions to constrain the motions of the Colombian Geored network in order to understand the tectonic complexity of the north-western part of the South America continent.