



## **Is the Central America forearc sliver part of the North America plate?**

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The Central America Forearc sliver is located between the Central America volcanic arc and the Middle America trench. Several authors have suggested that the forearc is being displaced to the northwest with respect to the Caribbean plate; they point to right-lateral, normal-faulting earthquakes along the Central America volcanic arc as prime evidence of this displacement. Apparently, the forearc continues to the northwest into southeastern Mexico, although this portion of the forearc is not being displaced.

I present evidence that suggests that the forearc indeed continues into southeastern Mexico and that it belongs to the North America plate.

Physiographically, there is a continuity of the forearc into the Coastal plains of southeastern (Chiapas) Mexico, across the Motagua and Polochic faults. Offshore, cross-sections of the Middle America trench are similar along the Mexican (Chiapas) segment, and the Central American segment. Furthermore, at the northwestern end of the coastal plain there are no compressive structures, which suggests that the coastal plain is not being displaced to the northwest. As a matter of fact, fault-plane solutions for shallow earthquakes show extension rather than compression.

Shallow, interplate earthquakes along the trench show similar parameters along both segments. P-axes and earthquake slip vectors have consistent azimuths, which relate better with Cocos-North America convergence than with Cocos-Caribbean. Azimuth of T-axes for normal-faulting earthquakes also agree well with Cocos-North America convergence.

Similarity in several parameters is thus found across both segments, the Chiapas coastal plain and the Central America forearc sliver proper. This suggests that both segments are continuous and probably one and the same, and belonging to the North America plate. Perhaps more properly, the forearc sliver extends into southeastern Mexico and is part of the zone of deformation associated to the Cocos-North America-Caribbean plates triple junction.

Right-lateral, strike-slip faulting along the volcanic arc, and GPS results for the forearc sliver indicate that the forearc sliver is moving with respect to the Caribbean plate. In the model presented here, I propose that it is the Chortis block (the northwestern corner of the Caribbean plate) is the one moving with respect to the forearc. In fact, I have presented evidence elsewhere attesting to this.