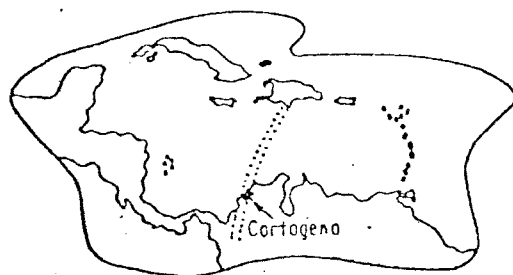


10s. CONFERENCIA GEOLOGICA DEL CARIBE

**PROGRAMA  
Y RESUMENES DE LOS TRABAJOS**



CARTAGENA DE INDIAS - 1983

10th. CARIBBEAN GEOLOGICAL CONFERENCE

**PROGRAM  
AND ABSTRACTS OF PAPERS**

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BURKART, B., MORENO, G. - The Universi-  
ty of Texas at Arlington and B.C. Deaton-  
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North American-Caribbean Plate Boundary  
in Southern Chiapas, Mexico: Further Evi-  
dence of Neogene Activity.

The Polochic fault, a part of the North  
American-Caribbean plate boundary, ex-  
tends across southernmost Chiapas, Mexico,  
where its sinistral offset has juxtaposed Pa-  
leozoic crystalline rocks of the Chiapas mas-  
sif against Late Miocene granodiorites of the  
Motozintla intrusive. Detailed mapping of  
the Polochic reveals that the west trending  
fault zone changes to west-southwest at the  
frontier of Mexico and Guatemala. During  
the final stages of documented left slip of  
130 km, extension occurred over a segment  
of the fault from near the frontier to a few  
kilometers from the Pacific coastal plain.  
This zone of extension is along a releasing  
bend of the fault which lies above today's  
zone of active subduction and is as close as  
25 km to the active Volcán Tacaná. The  
Motozintla intrusive, whose age has been  
determined previously to be 5.5 m.y., has  
come up along this segment of the fault. The  
intrusion is sheared and mylonitized where it  
contacts the two fault blocks, but shows lit-  
tle deformation near its center. Recent stud-  
ies in Guatemala indicate a time range of  
major activity for this fault from 10.3 m.y.  
B.P. to sometime more recent than 6.6 m.y.  
B.P. Previous studies have shown recent  
strains along the fault in Guatemala. We have  
now documented recent activity along the  
southern-most margin of the Motozintla in-  
trusive. Shutter ridges and triangular facets  
have been observed in the field in the Moto-  
zintla Valley and near the coast in fault val-  
leys of the villages of El Triunfo and Esquin-  
tla. Drainages in these valleys have offsets in  
the range of 1/2 to 2 1/2 km.

Previously it was shown that Laramide  
structures in Guatemala are offset sinistrally  
by 130 km and that the Middle America  
Trench axis is offset by the same amount  
and in the same sense. The offset occurs at  
the same latitude as the east-west trending  
Polochic in Mexico and Guatemala. Rifting  
along the Cayman Trough-Izabal graben  
boundary was also suggested as a coeval  
Neogene event.

There is no evidence that movements  
earlier than Neogene have taken place along  
the Polochic fault zone. Strong evidence has  
existed for some time for a Neogene age for  
much of the spreading within the Cayman  
Trough segment of the North American-

Caribbean plate boundary. The Early Plio-  
cene Motozintla intrusive offers evidence  
that faulting along the Polochic is, at least  
in part, a coeval event.

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State University of New York at Albany,  
bany, New York. EVA, A. - Robertson Re-  
search (U.S.), Houston, Texas. HUNTER, V.  
Robertson Research (U.S.), Houston, Texas.  
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Four - Phase Tectonostratigraphic Develop-  
ment of the Southern Caribbean.

Since northern South America collided  
with North America in the Ouachita-  
Marathon Mountains in the Late Paleozoic,  
four subsequent tectonic events have affect-  
ed the area that is now the southern Carib-  
bean. Detailed compilation of published stra-  
tigraphy suggest these events are: (1) conti-  
nental rifting in the late Triassic/early Juras-  
sic associated with the separation of North  
and South America approximately along the  
Paleozoic suture. Rifting produced red bed  
deposition in northeast trending grabens  
with some basaltic volcanism and isolated  
occurrences of thick evaporite sequences. As  
the Gulf of Mexico and proto-Caribbean  
ocean widened between the Americas, north-  
ern South America behaved as a passive mar-  
gin and accumulated a fully marine sequence  
until the Santonian; (2) island arc develop-  
ment and collision associated with the entry  
of the present Caribbean plate, an area of  
buoyant ocean crust, into the gap between  
the separating Americas. The arc, which had  
begun to develop in the early Cretaceous,  
collided with the passive margin of northern  
South America from the Santonian to the  
Eocene. This resulted in the obduction of  
the ophiolitic forearc basement of the arc  
onto South America and development of a  
thrust-loaded foreland flysch trough; (3)  
Dextral strike-slip faulting associated with  
eastern motion of the Caribbean plate rela-  
tive to South America began in the early Oli-  
gocene and produced thick clastic deposits  
in complex strike-slip basins as well as dis-  
rupting earlier arc and rift rocks. A total off-  
set of greater than 1,000 km is required to  
match Eocene sediments in Barbados with  
their probable source in western Venezuela;  
and (4) Panama arc collision with Colombia  
in the Mio-Pliocene drove a complex triang-  
ular wedge bounded by the Bocono and Santa  
Marta Faults northward into the Caribbean.  
Active tectonics east of the wedge still re-  
flect Caribbean-South America plate motion  
and indicate a southward widening of the  
plate boundary zone during the Late Ceno-

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