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THE CASE OF THE EL PILAR FAULT SYSTEM IN TRINIDAD AND ITS IMPLICATIONS FOR SEISMIC HAZARD IN THE S.E. CARIBBEAN

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ABSTRACT

Geological maps of Trinidad and of regional tectonics show a major east-west trending fault system in the contact zone between the Mesozoic metamorphic belt of the Northern Range and the Cenozoic sedimentary Northern Basin. Although the official geology map of Trinidad presents this fault system as an inferred feature, the passage of time has bestowed an element of fact to this structure without the benefit of confirmatory evidence.

The tacit acceptance of the existence of the El Pilar Fault zone in northern Trinidad has given rise to its designation as the plate margin or boundary zone between the Caribbean plate and the South American plate. Whereas recent advances in the study of the Venezuelan counterpart section of the El Pilar fault system have provided supporting evidence for an active strike slip fault zone, the opposite seems to be the case with the postulated Trinidad extension of this fault system.

The implications of an active or potentially active El Pilar fault are very far reaching for an appreciation of the earthquake hazard exposure of Trinidad, as well as for the interpretation of regional tectonic models.

This paper re-examines the El Pilar fault system against a background of geological and seismological data and concludes that the case for an active seismic zone or strike-slip plate margin is obscure.