Character of the Caribbean Crust Revealed: Initial Observations of New and Reprocessed Seismic Data

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EXTENDED ABSTRACT

Details of the tectono-sedimentary evolution of the Caribbean Large Igneous Province (CLIP) are debated due to lack of modern and regional seismic data. Industry seismic surveys across the Caribbean area are acquired over individual basins and do not incorporate regional perspective. This lack of regional data coverage obscures the clear tectonic and stratigraphic evolution of the region.

Extensive geophysical, petrological and geochemical studies have been completed over decades, concluding that the Caribbean Plate is "oceanic" in origin. Additionally, analyses of rocks from the various onshore domains of the Caribbean region have been interpreted to be of uplifted oceanic plateau origin. Early seismic refraction datapoints of the CLIP's interior have consistently indicated typically oceanic seismic velocities. These data also show portions of the crust to be unusually thick (up to 25 km) for oceanic crust (e.g., historical summaries in Dengo and Case, 1990). By the 1970s, it was understood that the Caribbean interior comprised a large igneous oceanic plateau (Edgar et al., 1971, 1973; Burke et al., 1978). As additional data are acquired and interrogated, aspects of the Caribbean Plate are slowly revealed. Valuable legacy data also has the potential for providing insights in the region when modern methods and analyses are applied. We present data in support of distinct tectonic provinces and regional stratigraphic suites that reveal the complex evolution of the Caribbean Plate.

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