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## Age & Provenance of the Scotland Formation, Onshore Barbados

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The Cenozoic dextral-oblique collision of the Caribbean and South American tectonic plates has progressively deformed, exhumed, and eroded the northern South American margin from Venezuela to Trinidad. Although sediment shed off the South American continent into the foredeep and accretionary prism ahead of the eastward-advancing Caribbean Plate provides a record of the timing and magnitude of collision, subsequent deformation and erosion limits preservation and the early history of the collision remains uncertain.

Paleogene deepwater turbidite deposits exposed in the Scotlands District of eastern Barbados (Scotland Group) provide a unique opportunity to constrain the early Cenozoic evolution of the South American-Caribbean Plate Boundary. Although the Scotland Group has been studied since at least 1940, the age, provenance, and nature of its relationship to the overlying Oceanics Formation remain the subject of much debate.

In 2017, BHP conducted a comprehensive field and analytical program targeting Paleogene sediments exposed onshore Barbados with the purpose of constraining depositional age, provenance, and tectonic history through field observation, biostratigraphy, heavy minerals analysis, detrital geochronology, and thermochronology. Our results definitively constrain the age of the Scotland Group to Eocene, with a most likely age of Early Eocene. Interbedded carbonates, shales, and sandstones of the Oceanics Formation are both age-equivalent and younger than the Scotland Group. Detrital geochronology, thermochronology, and heavy minerals analysis support a shared provenance from the Andes, Caribbean Mountains, and the southwestern Guyana shield for the Scotland Group and Oceanics Formation.

We conclude that the Scotland Group and Oceanics Formation record continuous deepwater sedimentation in the foredeep and accretionary prism ahead of the advancing Caribbean Plate from Early Eocene time. Furthermore, Early Eocene deepwater turbidites of the Scotland Group are likely down-dip equivalents of the Misoa Delta of the Maracaibo foreland basin and have since been transported eastward over 1000 km to their present-day location.