
Sedimentary Facies Analysis and Strontium-Isotope Stratigraphy of the Hillbank and Yalbac Formations, Corozal Basin, Belize

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ABSTRACT

The informal Hillbank¹ and Yalbac formations are subsurface-only units of the Corozal basin of northern Belize. In stratigraphic order within Hillbank, are the following informal members—lower Hillbank dolostone (LHBD); lower Hillbank sandstone (LHBS); middle Hillbank dolostone (MHBD); and upper Hillbank sandstone (UHBS). The overlying Yalbac formation consists of three informal members, Y1–Y3. There are nine microfacies in the Hillbank-Yalbac stratigraphic section, including (1) shelf lagoon, (2) shallow subtidal, (3) supratidal, (4) sabkha, (5) transitional clastic-carbonate facies, (6) fluvial overbank, (7) fluvial channel, (8) fluvial and alluvial fan, and (9) alluvial fan. All these microfacies are present in the Hillbank, but the Yalbac consists of only the carbonate and evaporite microfacies (1–4, above). Strontium-isotopic ratio analysis of samples taken throughout most of the Hillbank-Yalbac section provides new, best-fit numerical age dates. Most of the stratigraphic section sampled for this analysis is now thought to be substantially different in age from previous work. Strontium-isotopic ratios indicate that the Hillbank was deposited during Late Triassic to Early Jurassic, as was the lower few meters of the Yalbac's Y3. A significant hiatus or stratigraphic break (i.e., from 190 to 133 million years ago) occurs in the stratigraphic succession near the base of informal member Y3, and the stratigraphic section lying above that stratigraphic break, namely the Yalbac formation (informal members Y3, Y2, and Y1).

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