
**High-resolution record of cyclone strikes from
the Blue Hole, Lighthouse Reef, Belize**

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Sediment cores from the Blue Hole of Lighthouse Reef, Belize, were collected in order to obtain a high-resolution record of storm activity over approximately the past two millennia. The focus of this study is to identify the sedimentary signature (recorded in our cores) produced by storms of known track and intensity. These observations will then be used to evaluate recently posed hypotheses relating North Atlantic cyclone trajectories to 10^2 – 10^3 y shifts in large scale atmospheric circulation. Vibracores (to >6 m length) have been scanned with a multisensor logger equipped with digital camera, gamma densitometer, and photospectrometer, then imaged with a digital X-ray system. The vertical resolution of data gathered ranges from 0.03 mm to 2.0 mm. Radioisotope geochemical analyses (Pb-210, C-14) are underway. Preliminary results show that background sedimentation consists of varved carbonate muds which are interbedded with thicker coarser layers produced by notable sediment-transport events. Depositional event beds are distinguished from background varved laminae based on coarser grain size, normal grading, light colour, and layer thickness >2.5 mm. Documented cyclone landfalls, compared with patterns of bedding and sedimentary fabric, suggest that the high-resolution data record deposition of both direct strikes of intense cyclones, as well as weaker events that are presumably more distant and/or less intense storms, thus providing one of the most complete paleotempestological records for the region to date.