

A Detailed Tropical Sea Level Record Spanning the Younger Dryas Abrupt Cooling Event

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Sea level (SL) is a fundamental measure of variability in continental ice volume and provides a benchmark to test climate change hypotheses. SL records of the most recent deglaciation show 2 pulses of accelerated rise (MWPs 1A and 1B) separated by an interval of reduced SL rise. The Younger Dryas (YD) abrupt cooling event (12.85 to 11.65 kyr BP), recorded by climate proxies as a return to near glacial-like conditions in the circum-North Atlantic, falls between these MWPs and provides a unique opportunity to study the effect of abrupt climate change on SL.

Based on *Acropora palmata* fossil corals from Barbados and initially constrained by 3 radiocarbon dates, our YD SL record is now defined by 19 U/Th dates. From 14.0 to 11.3 kyr BP, SL rose from -81 to -56.5 m with an initial rate of 10 m/kyr that decreased smoothly to <5 m/kyr at the base of MWP1B. At the beginning of the YD, SL was at -69 m and rose 8 m by the end of this interval. The YD interval recorded only a minor slowing of SL rise and is a continuation of the trend that began at the top of MWP1A and ended with MWP1B.