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# Monthly-scale palaeo-rainfall reconstructed using a Belizean stalagmite.

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Stable isotope variations and visible growth layers in a fast growing, U-Th dated, aragonitic stalagmite from southern Belize provide an extraordinarily high resolution proxy palaeo-rainfall record for the Central American Atlantic region over the last 1,400 years. The $\delta$18O and $\delta$13C of speleothem carbonate at this location appears to respond primarily to rainfall variability over the cave site. A surprising result is that annual $\delta$13C cycles are present within the stalagmite, conceivably reflecting seasonality in rainfall. With a bi-monthly resolution the record allows the inference of palaeo-tropical cyclone events as well as intra-annual rainfall variations. The record is also sufficiently long as to lend itself to helping decipher long-term behavioural modes of the tropical Atlantic beyond the instrumental record. The annual variability in stalagmite growth rate over the last 1,400 years is feasibly recording ITCZ migration through time. This study therefore has important implications for deconvolving the Atlantic tropical cyclone record, while also increasing our understanding of the links between ENSO, the ITCZ, and Central American climate.