

An early Holocene stalagmite record of dust and humidity from southwestern Mexico.

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A U/Th dated stalagmite from “Cueva del Diablo”, Guerrero State (southwestern Mexico) that grew between 11.11 ± 0.32 and 7.88 ± 0.18 ka B.P., has been analyzed for variations in trace element, Sr/Ca, Mg/Ca, Ba/Ca, U/Ca ratios, and $\delta^{18}\text{O}$. Using microsampling techniques an age resolution ranging from 75 years to 1 year, depending on the growth rate, has been achieved.

Trace element time-series show enrichments and depletions which are correlated with the high-latitude 8.2 ka B.P. cooling event. PAAS normalized REE diagrams for the different sections of the stalagmite indicate that REE are also enriched around 8.2 ka B.P., and suggest the same source of REE elements during the entire growth period of the stalagmite. Since the cave and sampling site are very well ventilated, we suggest that the variations in the trace element record can be interpreted as changes in the dust inputs from the cave exterior and, consequently, with changes in aridity and/or tradewind strength.

The Cueva del Diablo trace element record provides further evidence for tropical-extratropical teleconnections initially observed in a speleothem from Central America [1], and suggests an scenario where a more southerly mean position of the Intertropical Convergence Zone and weakened monsoon lead to more arid conditions in southwestern Mexico during cold periods.

1. Lachniet, M.S., Asmerom, Y., Burns, S.J., Patterson, W.P., Polyak, V.J. and Seltzer, G.O., (2004), *Geology* **32**(11), 957-960.