The internal structure of millennial-scale abrupt climate change events; insights from LAICPMS Sr/Ca and Mg/Ca records

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Stalagmites are considered one of the most robust and reliable archives of past climate change. In stalagmites from tropical regions, the oxygen-isotope composition is usually used as a proxy for past rainfall amount and source of atmospheric moisture. In addition to amount of moisture/rainfall amount, trace element composition on stalagmites can provide a wealth of information on the geochemical processes occurring in the epikarst and, using laser-ablation sampling, micron-scale spatial resolution can be achieved.

In this work we present the high-resolution record from Botuverá Cave stalagmites using LA-ICPMS. This record allow us to observe with unprecedented detail the structure of abrupt climate change events occurring during the last 40,000 years, such as the Little Ice Age, the 8.2 ka, and Heinrich events, and allow us to study the relevance that solar and atmosphere-ocean oscillations (ENSO, AMO) had during those periods.