

CALIBRATION OF DOLOMITE CLUMPED ISOTOPE THERMOMETRY

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Though dolomite is ubiquitous throughout the stratigraphic record, its formation remains poorly understood. Carbonate clumped isotope thermometry is a new technique with the potential to answer many long-standing diagenetic and paleoenvironmental questions, but it has yet to be fully applied to dolomite. I propose to measure clumped isotopes in dolomites grown at a range of known temperatures and use that data to develop an empirical clumped isotope calibration for dolomite. I will analyze a unique suite of synthetic dolomites grown at precise temperatures along with natural dolomites formed under constrainable conditions. The calibration I will develop will provide a method that can be used to determine the temperature at the time of formation for any well-preserved dolomite, thus potentially answering long-standing questions about how this important reservoir rock forms.

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