



## **Testing for anthropogenic ENSO modulation using millennial-scale paleo-observations**

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The recent occurrence of relatively intense and frequent ENSO events raises the question whether anthropogenic climate forcing is modulating ENSO. Detecting anthropogenic changes requires a quantitative understanding of the unforced variability. Most ENSO change detection studies focus on instrumental records. Yet, it is unclear whether the instrumental records can provide a robust characterization of the pre-anthropogenic ENSO state. Here we analyze ENSO variability in a published high-resolution paleorecord based on fossil corals. This record extends intermittently over the last millennium. We use positive and negative controls to characterize the skill of previously used as well as new methods in extracting potential ENSO changes from noisy observations. We use these methods to test for a statistically significant anthropogenic ENSO modulation.