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**A Characterization of Pleistocene Climate as Revealed by Empirical Mode Decomposition** MATTHEW RODRIGUES, CHARLES CAMP, California Polytechnic State University San Luis Obispo, PAMELA MARTIN, Indiana University - Purdue University Indianapolis, ALEX GERBER, California Polytechnic State University San Luis Obispo — A consensus as to the characterization of the Pleistocene's climate with respect to Milankovich theory (the forcing of climate by orbital dynamics) has remained elusive. In part, this is due of the shortcomings of classical techniques such as Fourier analysis in the study of nonlinear, nonstationary data. Confounding this problem, the age-depth relationship used to produce reconstructed time series of proxy data for past climate derived from ocean sediments often are "tuned" by assuming that the records have some component of climate change associated to one of the orbital parameters. Recently, a new time-series of proxy data for the waxing and waning of the ice ages has been constructed devoid of orbital assumptions–thereby allowing for clearer testing of the validity of Milankovich theory and related hypothesis for the timing and amplitude of the Pleistocene ice ages. We analyze this newly constructed record using a relatively new data-adaptive technique known as empirical mode decomposition (EMD), which is well suited for the study of nonlinear and nonstationary time data. Our EMD analysis clearly isolates the various components of this complicated time series and provides new insight into the behavior of the climate during the Pleistocene.

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