ENSO activity during the last climate cycle using IFA

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The El Niño / Southern Oscillation (ENSO) is the principal mode of interannual climate variability and affects key climate parameters such as low-latitude rainfall variability. Anticipating future ENSO variability under anthropogenic forcing is vital due to its profound socioeconomic impact. Fossil corals suggest that 20th century ENSO variance is particularly high as compared to other time periods of the Holocene (Cobb et al., 2013, Science), the Last Glacial Maximum (Ford et al., 2015, Science) and the last glacial period (Tudhope et al., 2001, Science). Yet, recent climate modeling experiments suggest an increase in the frequency of both El Niño (Cai et al., 2014, Nature Climate Change) and La Niña (Cai et al., 2015, Nature Climate Change) events. We have expanded an Individual Foraminifera Analysis (IFA) dataset using the thermocline-dwelling N. dutertrei on a marine core collected in the Panama Basin (Leduc et al., 2009, Paleoceanography), that has proven to be a skillful way to reconstruct the ENSO (Thirumalai et al., 2013, Paleoceanography). Our new IFA dataset comprehensively covers the Holocene, the last deglaciation and Termination II (MIS5/6) time windows. We will also use previously published data from the Marine Isotope Stage 3 (MIS3). Our dataset confirms variable ENSO intensity during the Holocene and weaker activity during LGM than during the Holocene. As a next step, ENSO activity will be discussed with respect to the contrasting climatic background of the analysed time windows (millenial-scale variability, Terminations).