

EGU2020-12928, updated on 29 Jan 2023
<https://doi.org/10.5194/egusphere-egu2020-12928>
EGU General Assembly 2020
© Author(s) 2023. This work is distributed under
the Creative Commons Attribution 4.0 License.



Reconstructions of Global and Regional Temperature Change for the Last 5 Myr

Peter U. Clark¹, Jeremy Shakun², Yair Rosenthal³, Patrick Bartlein⁴, Peter Koehler⁵, and Hari Mix⁶

¹CEOAS, Oregon State University, Corvallis, OR, United States of America (clarkp@onid.orst.edu)

²Boston College, Boston, MA, United States of America (jeremy.shakun@bc.edu)

³Rutgers University, New Brunswick, NJ, United States of America (rosentha@marine.rutgers.edu)

⁴University of Oregon, Eugene, OR, United States of America (bartlein@uoregon.edu)

⁵Alfred-Wegener-Institut, Bremerhaven, Germany (pkoehler@awi.de)

⁶Santa Clara University, Santa Clara, CA, United States of America (hmix@scu.edu)

We use a global array of ~120 sea-surface temperature (SST) records based on Mg/Ca, alkenone, and faunal proxies to reconstruct global and regional temperature change over the last 5 Myr. All records are placed on the LR04 age model. Here we report the reconstructions and discuss their implications for characterizing global climate evolution (frequency, variance, transitions) over this interval and its relationship to changes in CO₂, orbital forcing, and mean ocean temperature. Average global temperature has cooled by ~6.5°C since 5 Ma, with significant breakpoints tentatively identified at ~3.38 Ma, 1.34 Ma, and 0.88 Ma. We also invert the global reconstruction to reconstruct global sea level for the last 5 Myr.