Reconstructing climate variability since 1880 through paleoclimate proxies

<u>David Anderson</u>[†]; Elyse Mauk; Eugene Wahl; Carrie Morrill [†]National Climatic Data Center, USA Leading author: <u>David.M.Anderson@NOAA.gov</u>

This project aims to test the fidelity of the well-known global surface temperature (GST) record from the 1880s to present day (1995). Our purpose was to create the first independent observational climate record from paleoclimatological proxies to compare against the upward temperature trend in the existing instrumental climate data. Relevant proxy data (including ice cores, corals, cave deposits, documentary evidence) were gathered from NOAA archives, cited articles, and solicited from scientists; each time series was normalized to construct annual averages to compare against GST annual average anomalies from the same base period (1901-2000). Statistical analyses were done to test against the null hypothesis of no trend. Both GST and the paleoclimatological trends index show significant upward trends from 1880, as do individual subsets of oceanic, terrestrial, and biological data assembled from the set of all proxy records. All gathered data are highly resolved, distributed globally, span the majority of the study interval, and were analyzed for bias. According to this first independent evidence, we conclude that global temperatures have been rising since the 1880s.