

## Development of a Rapid Response Capability to Evaluate Causes of Extreme Temperature and Drought Events in the United States

Joseph J. Barsugli, David R. Easterling, Derek S. Arndt, David A. Coates, Thomas L. Delworth, Martin P. Hoerling, Nathaniel Johnson, Sarah B. Kapnick, Arun Kumar,Kenneth E. Kunkel,Carl J. Schreck, Russell S. Vose, and Tao Zhang

AFFILIATIONS: Barsugli—CIRES, University of Colorado Boulder, and NOAA/Physical Sciences Laboratory Boulder, Colorado; Easterling, Arndt, and Vose—NOAA/National Centers for Environmental Information, Asheville, North Carolina; Coates, Kunkel, and Schreck—CISESS, North Carolina State University, Asheville, North Carolina; Delworth, Johnson, and Kapnick—NOAA/Geophysical Fluid Dynamics Laboratory, Princeton, New Jersey; Hoerling—NOAA/Physical Sciences Laboratory, Boulder, Colorado; Kumar—NOAA/National Centers for Environmental Prediction, College Park, Maryland; Zhang—NOAA/National Centers for Environmental Prediction, and ESSIC, University of Maryland, College Park, College Park, Maryland

https://doi.org/10.1175/BAMS-D-21-0237.2 Corresponding Author: Joseph J. Barsugli, joseph.barsugli@colorado.edu This document is a supplement to https://doi.org/10.1175/BAMS-D-21-0237.1

©2022 American Meteorological Society

For information regarding reuse of this content and general copyright information, consult the AMS Copyright Policy.



Fig. S1. Preliminary analysis of Texas cold wave. (a) nClimGrid-daily (beta test version; Durre 2018) temperature anomaly showing extent of cold anomaly, (b) national and regional cold wave index from a subset of GHCN-daily station data with long records [modified and updated from Kunkel et al. (1999)], (c) histogram of February daily maximum temperature for the Brownwood, TX, station [GHCN (Menne et al. 2012) and fit with SGS distribution; Sardeshmukh et al. 2015] showing skewness of temperature distribution (from https:// psl.noaa.gov/data/atmoswrit/distributions/).

## References

- Durre, I., 2018: Daily grids and area averages of temperature and precipitation for the contiguous United States, 1951–present (nClimGrid-d and nClimDiv-d) public beta release—1 October 2018. NOAA, accessed 21 June 2021, ftp:// ftp.ncdc.noaa.gov/pub/data/daily-grids/docs/nclimdiv-description.pdf.
- Kunkel, K. E., R. A. Pielke Jr., and S. A. Changnon, 1999: Temporal fluctuations in weather and climate extremes that cause economic and human health impacts: A review. *Bull. Amer. Meteor. Soc.*, **80**, 1077–1098, https://doi. org/10.1175/1520-0477(1999)080<1077:TFIWAC>2.0.CO;2.
- Sardeshmukh, P. D., G. P. Compo, and C. Penland, 2015: Need for caution in interpreting extreme weather statistics. J. Climate, 28, 9166–9187, https://doi. org/10.1175/JCLI-D-15-0020.1.
- Menne, M. J., I. Durre, R. S. Vose, B. E. Gleason, and T. G. Houston, 2012: An overview of the Global Historical Climatology Network-daily database. J. Atmos. Oceanic Technol., 29, 897–910, https://doi.org/10.1175/JTECH-D-11-00103.1.