Geophysical Research Letters

Supporting Information for

Effect of Baseline Period on Quantification of Climate Extremes over the United States

Natalie P. Thomas[1,2], Allison B. Marquardt Collow[1,2], Michael G. Bosilovich[2], Amin Dezfuli[1,2]

[1]University of Maryland, Baltimore County, Baltimore, Maryland

[2]Global Modeling and Assimilation Office, NASA GSFC, Greenbelt, Maryland

Contents of this file

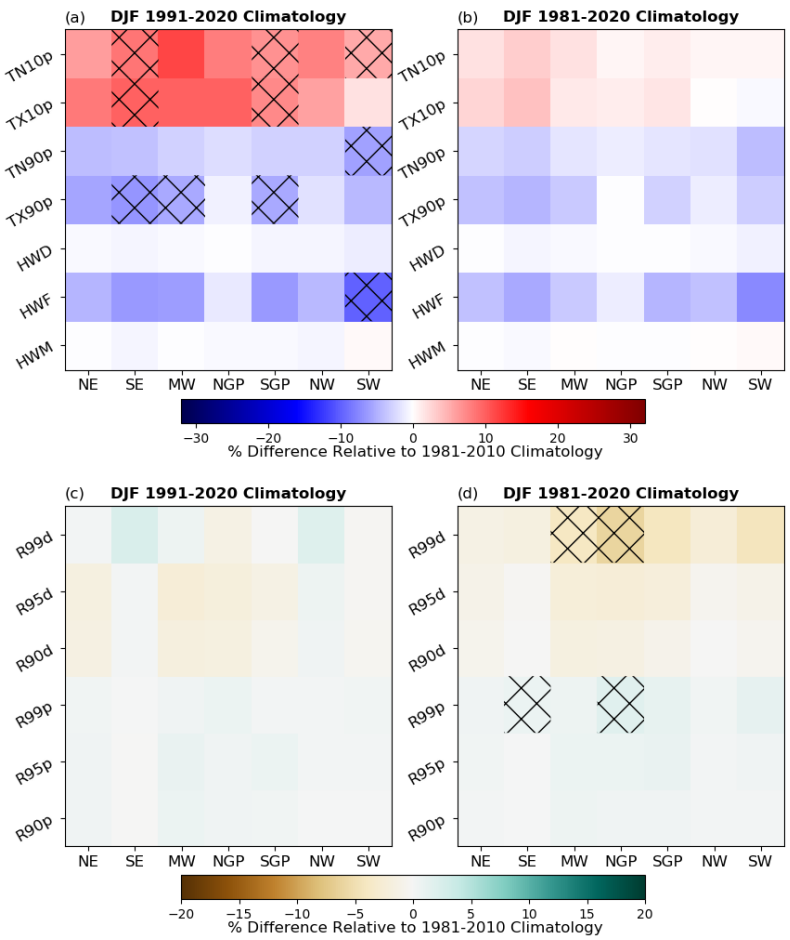

Figure S1. Average percent difference relative to the baseline climatology of 1981-2010 in area averaged extreme indices over regions of the United States for (a) temperature indices during DJF months using a baseline climatology of 1991-2020, (b) temperature indices during DJF months using a baseline climatology of 1981-2020, (c) precipitation indices during DJF months using a baseline climatology of 1991-2020, (d) precipitation indices during DJF months using a baseline climatology of 1981-2020. Hatching denotes the two climatologies result in statistically significant differences at 90% confidence.

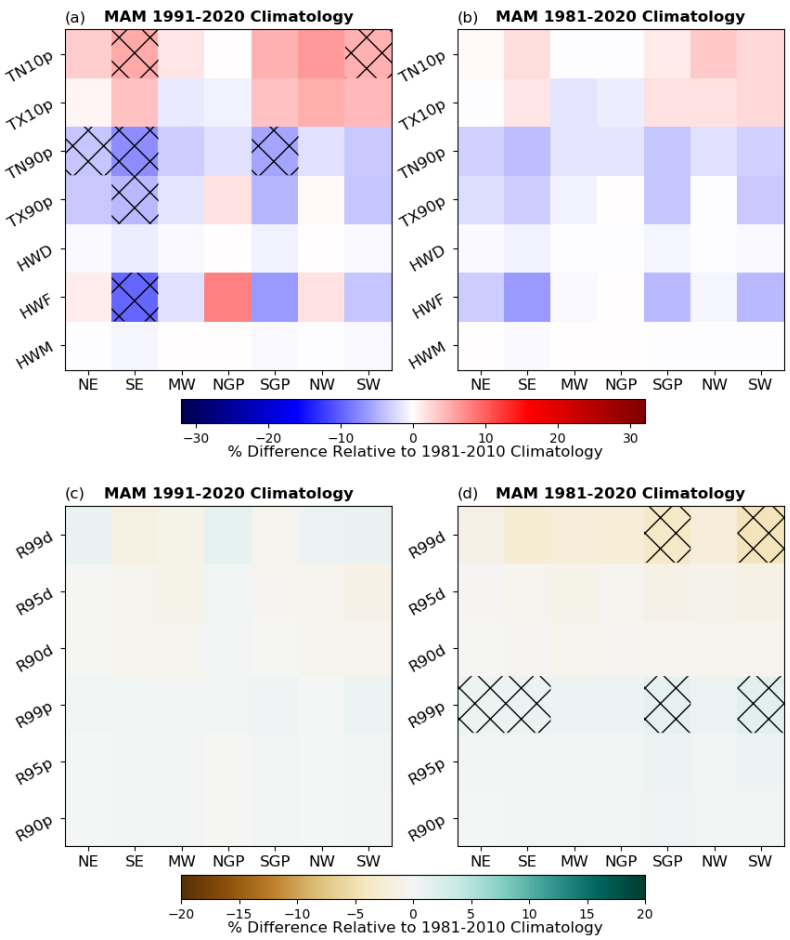

Figure S2. Average percent difference relative to the baseline climatology of 1981-2010 in area averaged extreme indices over regions of the United States for (a) temperature indices during MAM months using a baseline climatology of 1991-2020, (b) temperature indices during MAM months using a baseline climatology of 1981-2020, (c) precipitation indices during MAM months using a baseline climatology of 1991-2020, (d) precipitation indices during MAM months using a baseline climatology of 1981-2020. Hatching denotes the two climatologies result in statistically significant differences at 90% confidence.

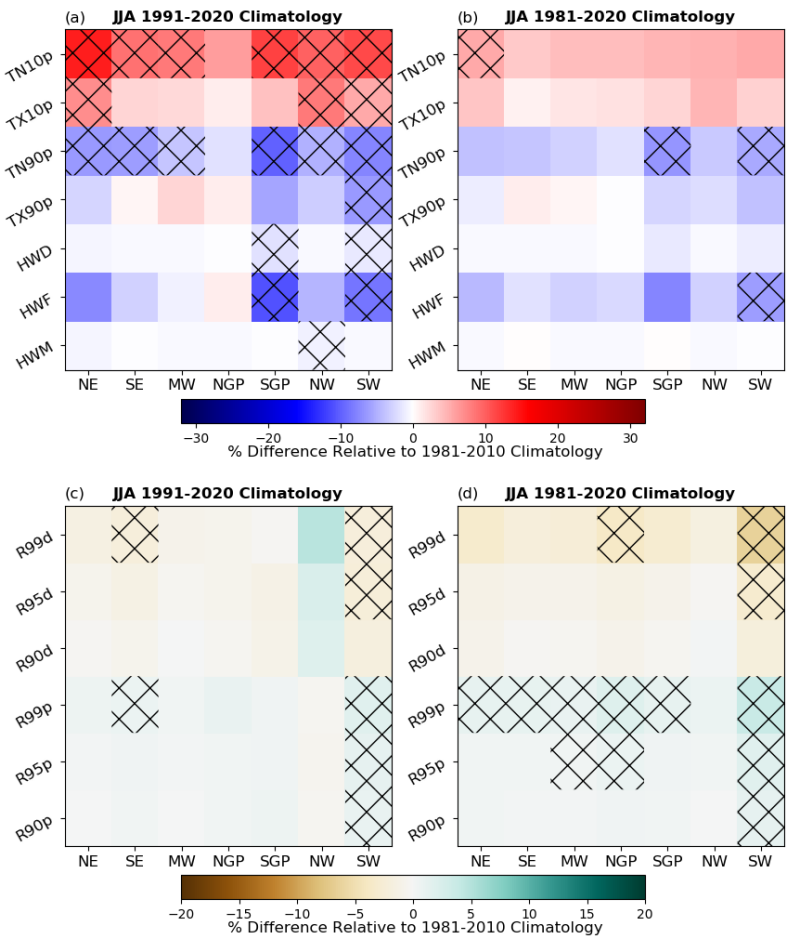

Figure S3. Average percent difference relative to the baseline climatology of 1981-2010 in area averaged extreme indices over regions of the United States for (a) temperature indices during JJA months using a baseline climatology of 1991-2020, (b) temperature indices during JJA months using a baseline climatology of 1981-2020, (c) precipitation indices during JJA months using a baseline climatology of 1991-2020, (d) precipitation indices during JJA months using a baseline climatology of 1981-2020. Hatching denotes the two climatologies result in statistically significant differences at 90% confidence.

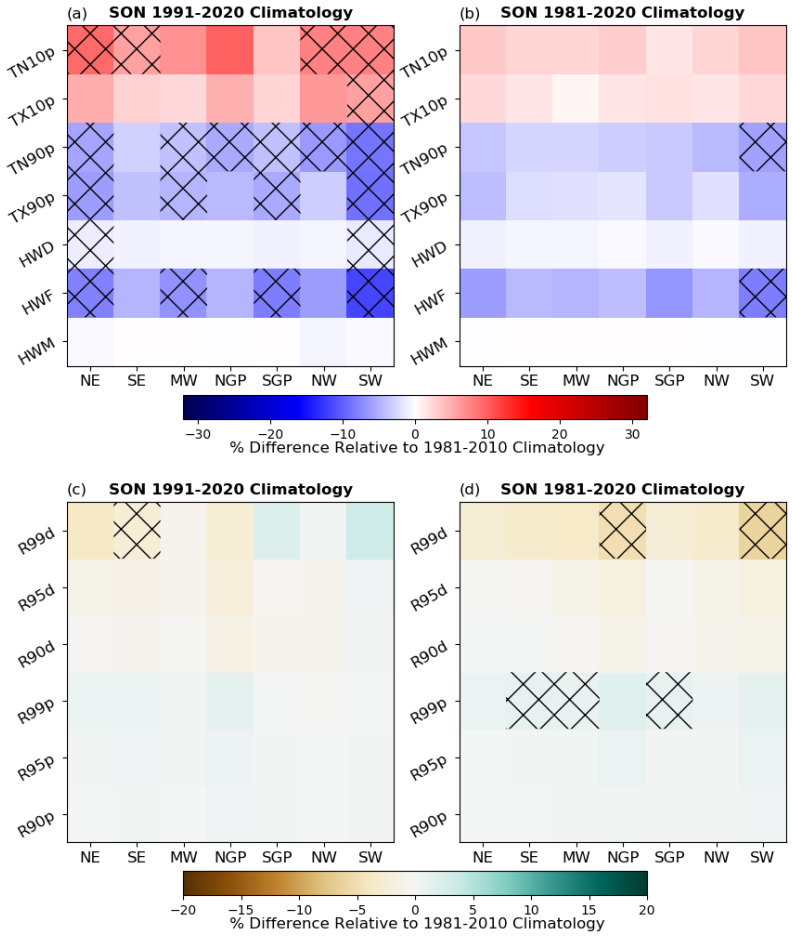

Figure S4. Average percent difference relative to the baseline climatology of 1981-2010 in area averaged extreme indices over regions of the United States for (a) temperature indices during SON months using a baseline climatology of 1991-2020, (b) temperature indices during SON months using a baseline climatology of 1981-2020, (c) precipitation indices during SON months using a baseline climatology of 1991-2020, (d) precipitation indices during SON months using a baseline climatology of 1981-2020. Hatching denotes the two climatologies result in statistically significant differences at 90% confidence.

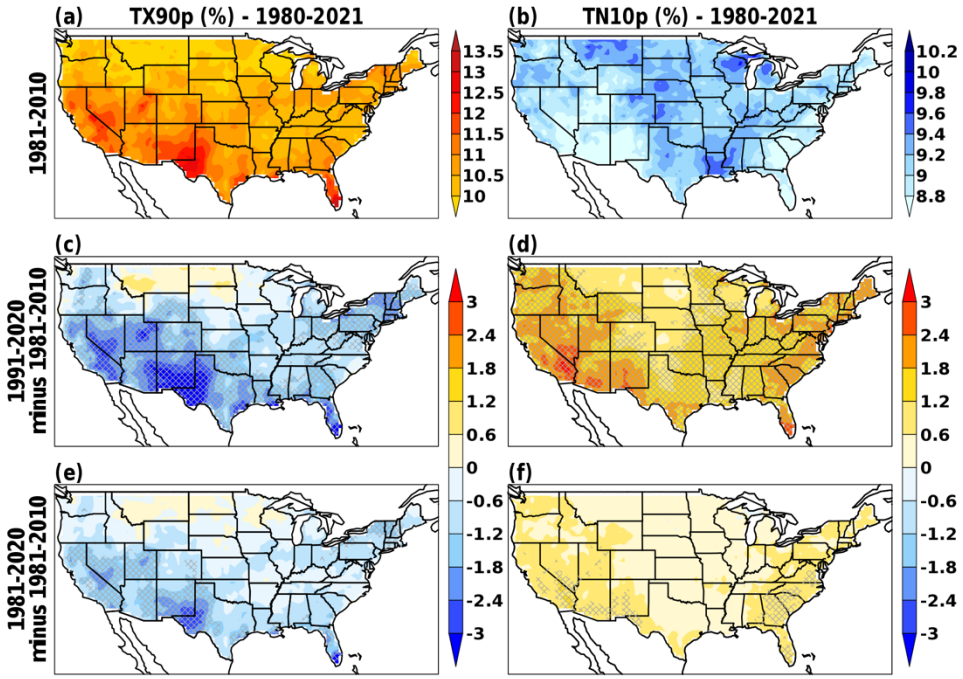

Figure S5. (a) TX90p defined using 1981-2010 percentiles averaged over all months 1980-2021, (c) difference between TX90p defined using 1991-2020 percentiles and TX90p defined using 1981-2010 percentiles, averaged over all months 1980-2021; grey hatching indicates where difference is significant at the 90% confidence level, (e) difference between TX90p defined using 1981-2020 percentiles and TX90p defined using 1981-2010 percentiles, averaged over all months 1980-2021, (b,d,f) as in (a,c,e) but for TN10p.

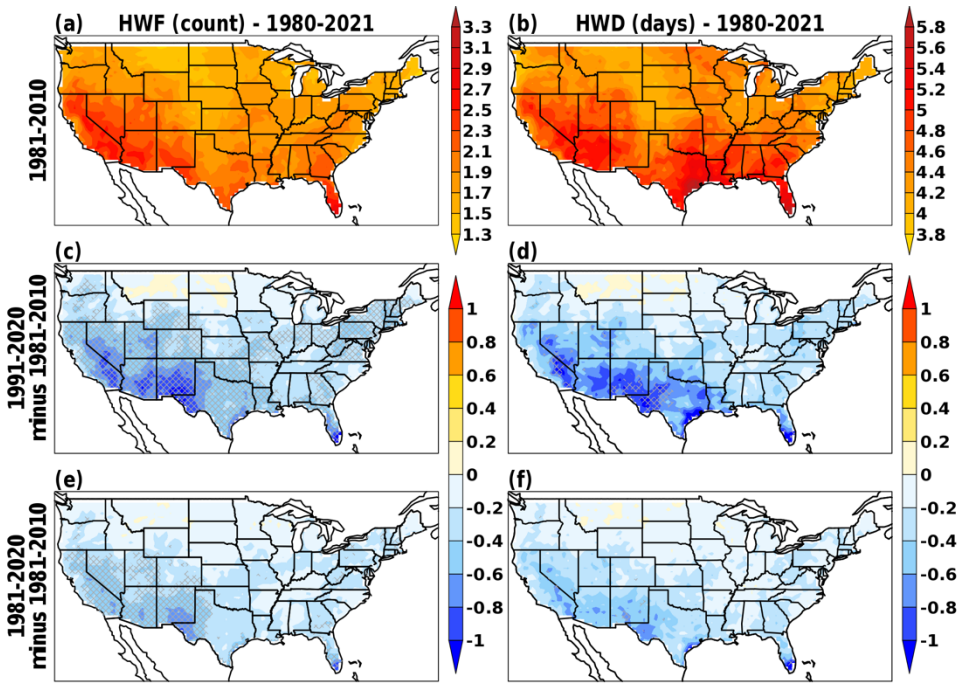

Figure S6. (a) HWF defined using 1981-2010 percentiles averaged over all months 1980-2021, (c) difference between HWF defined using 1991-2020 percentiles and HWF defined using 1981-2010 percentiles, averaged over all months 1980-2021; grey hatching indicates where difference is significant at the 90% confidence level, (e) difference between HWF defined using 1981-2020 percentiles and HWF defined using 1981-2010 percentiles, averaged over all months 1980-2021, (b,d,f) as in (a,c,e) but for HWD.

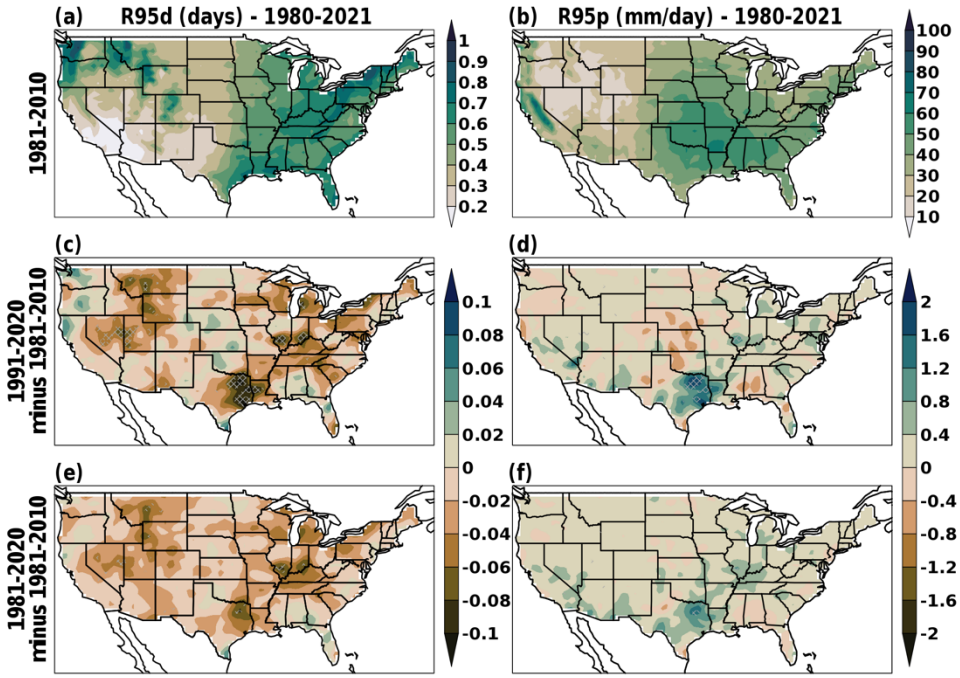

Figure S7. (a) R95d defined using 1981-2010 percentiles averaged over all months 1980-2021, (c) difference between R95d defined using 1991-2020 percentiles and R95d defined using 1981-2010 percentiles, averaged over all months 1980-2021; grey hatching indicates where difference is significant at the 90% confidence level, (e) difference between R95d defined using 1981-2020 percentiles and R95d defined using 1981-2010 percentiles, averaged over all months 1980-2021, (b,d,f) as in (a,c,e) but for R95p. For readability, panels c-d, e-f are plotted with a 9-point smoother.

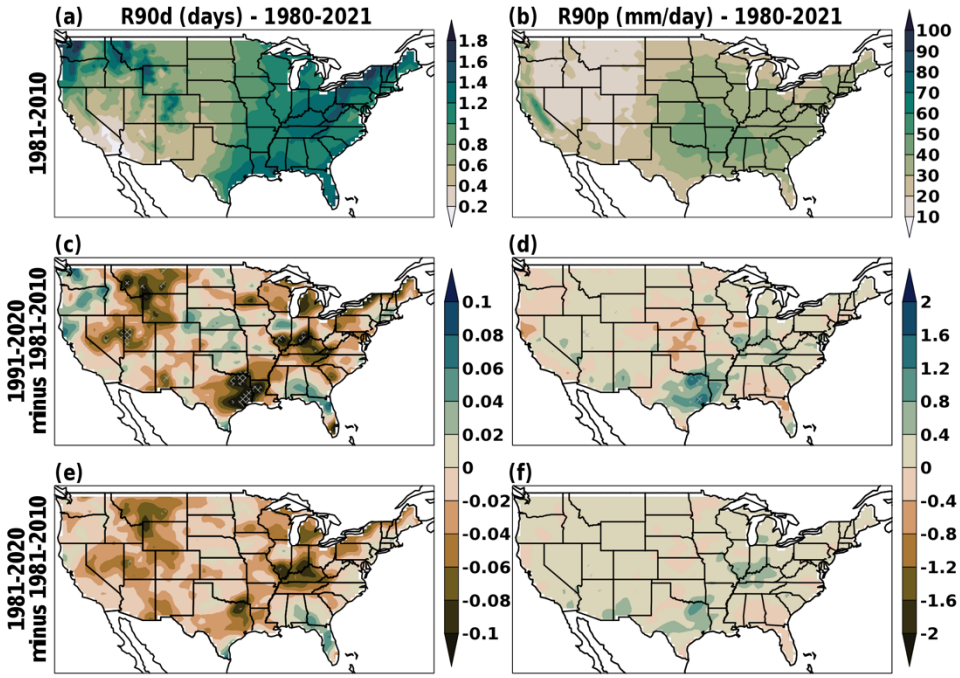

Figure S8. (a) R90d defined using 1981-2010 percentiles averaged over all months 1980-2021, (c) difference between R90d defined using 1991-2020 percentiles and R90d defined using 1981-2010 percentiles, averaged over all months 1980-2021; grey hatching indicates where difference is significant at the 90% confidence level, (e) difference between R90d defined using 1981-2020 percentiles and R90d defined using 1981-2010 percentiles, averaged over all months 1980-2021, (b,d,f) as in (a,c,e) but for R90p. For readability, panels c-d, e-f are plotted with a 9-point smoother.