How will future climate change impact prescribed fire across the contiguous United States?

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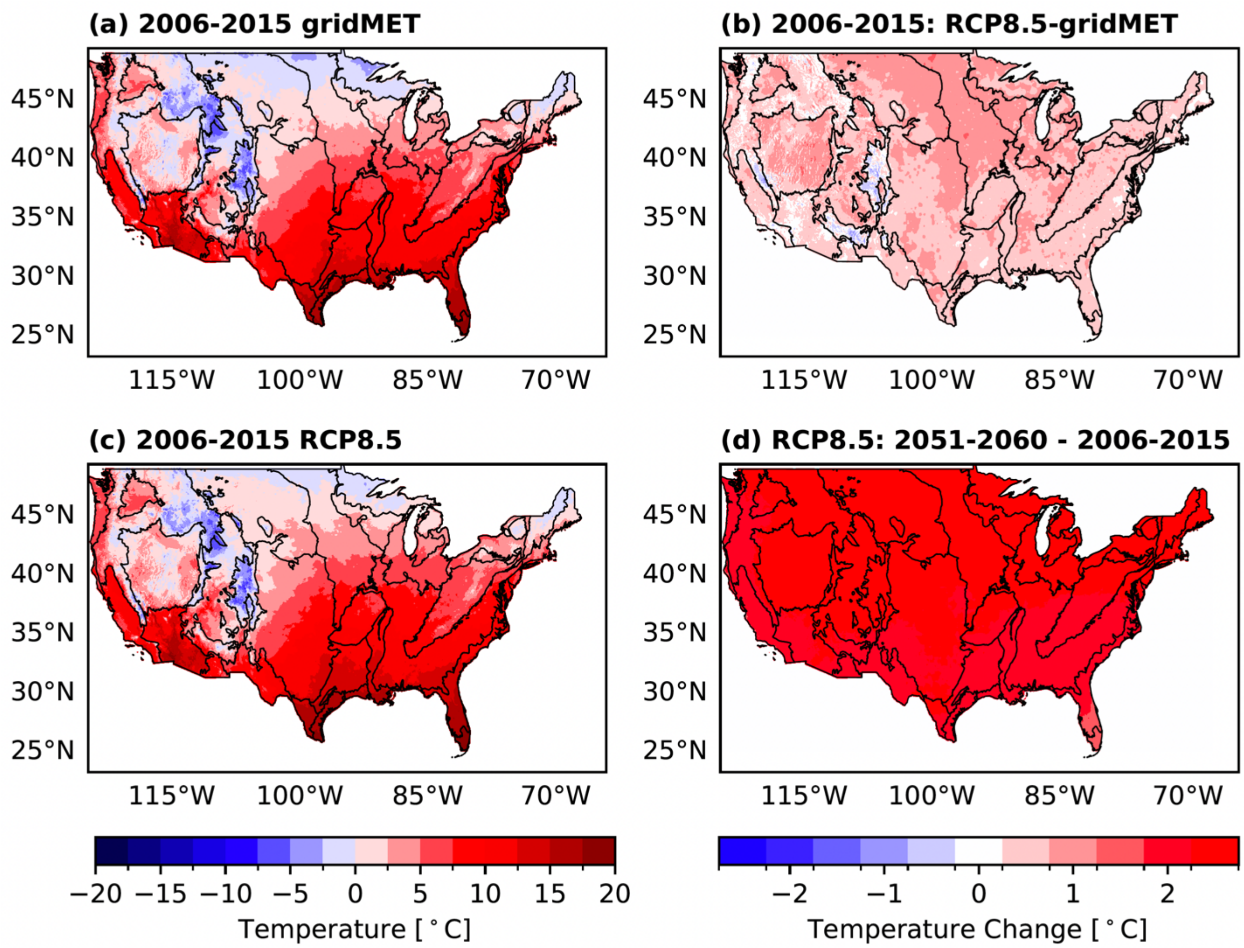
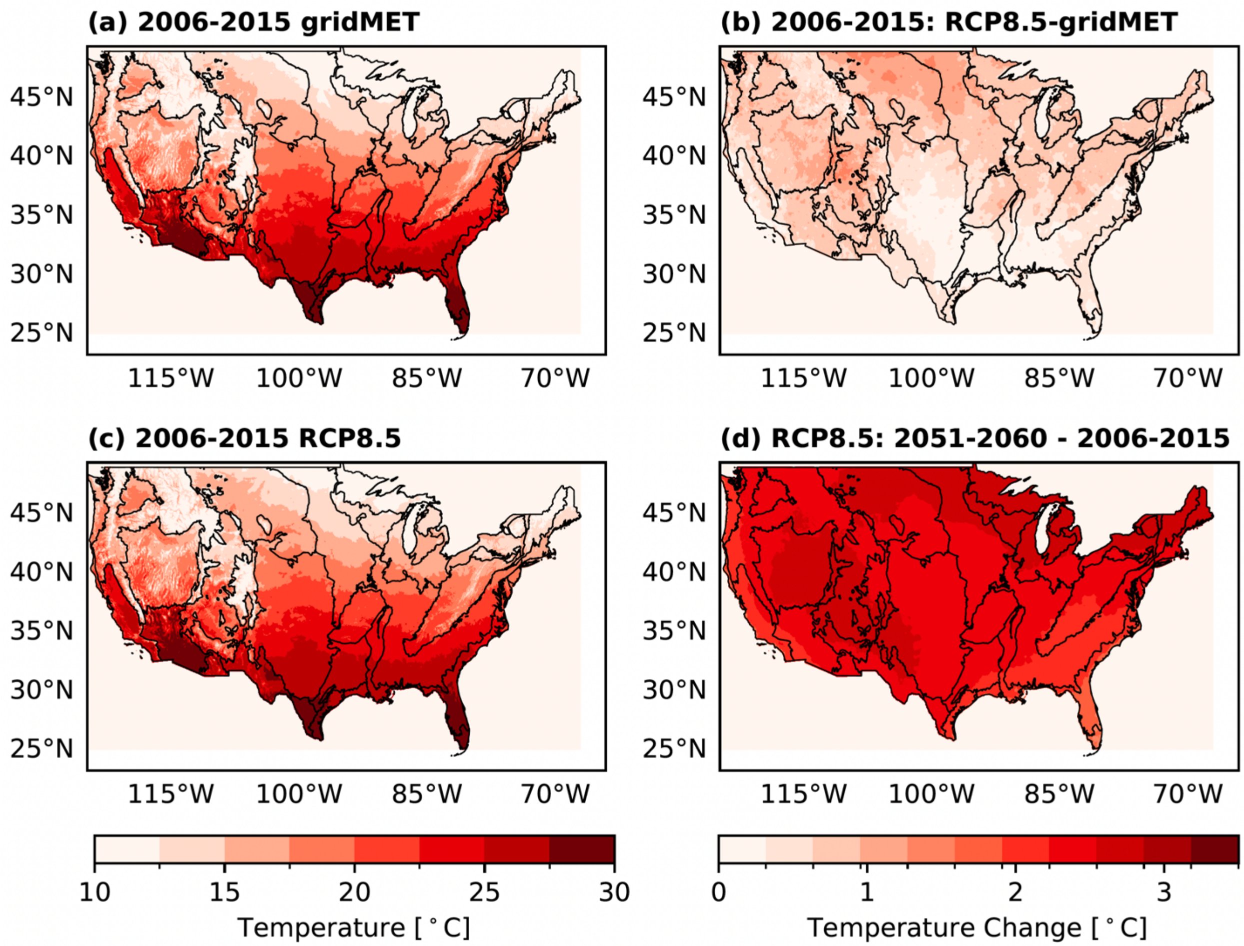
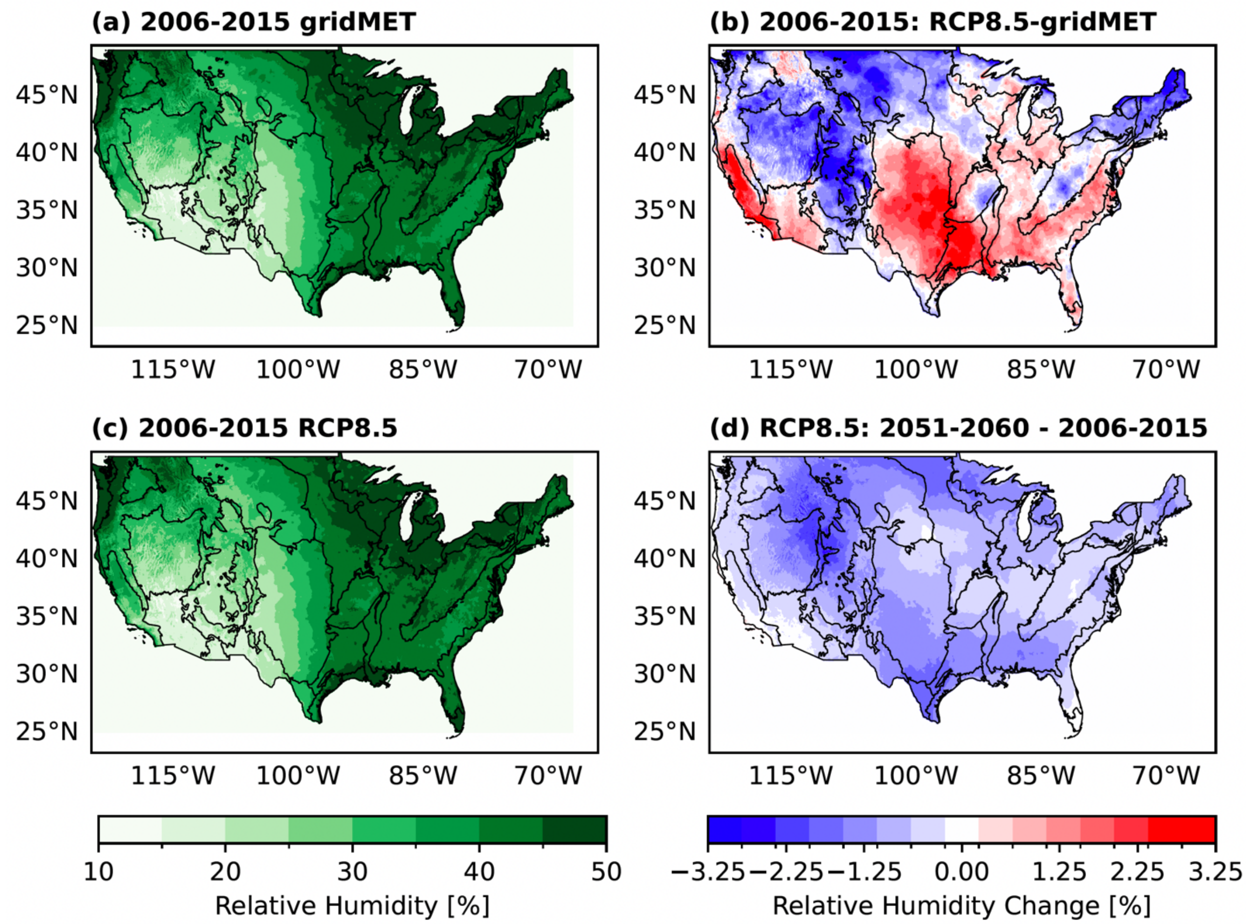
Supplementary Figures



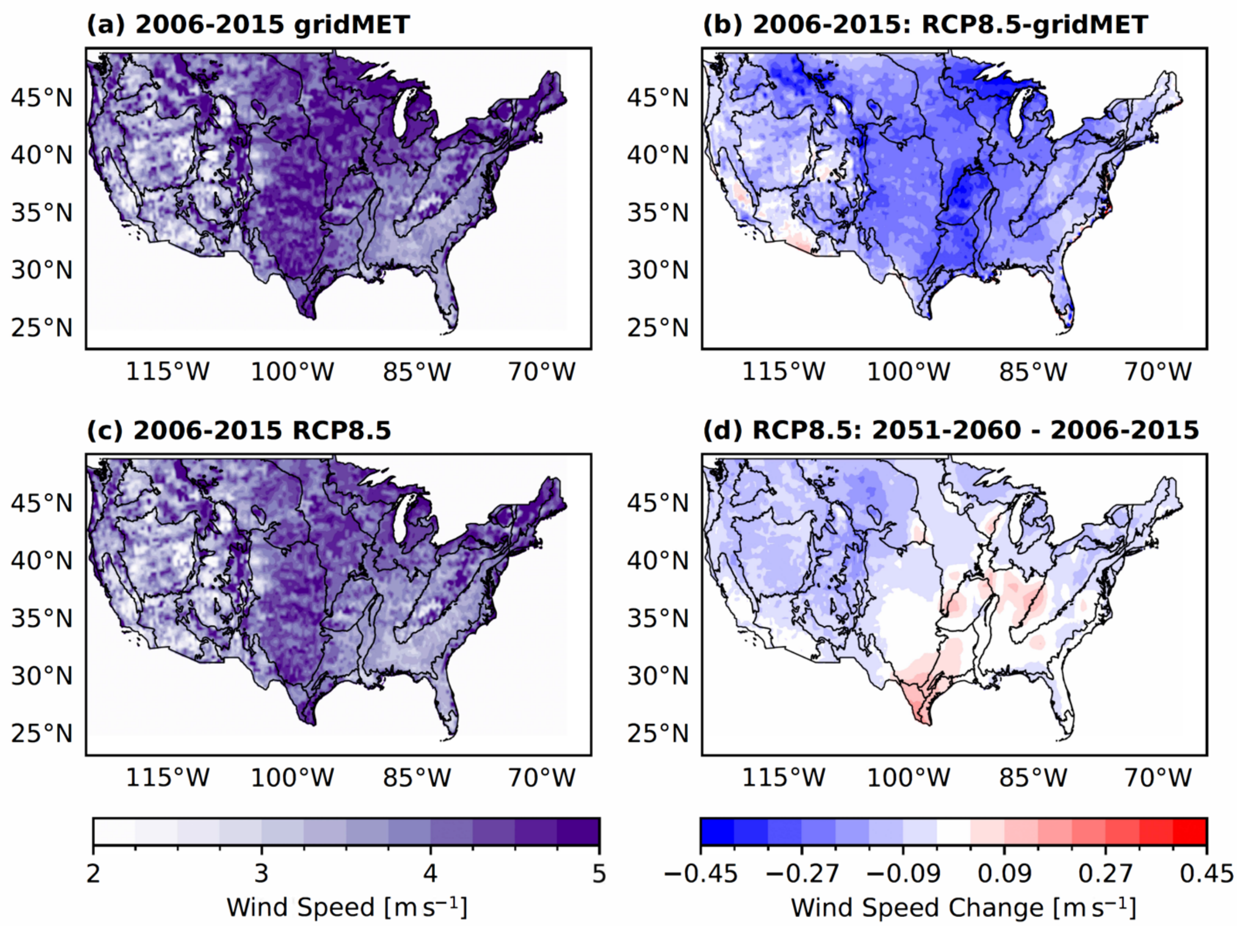
Supplementary Figure 1 *(b) Comparison of 2006-2015 daily minimum temperature between gridMET (a) and the average of 18 CMIP5 models for RCP8.5 (c). The climate model average overestimates minimum temperatures almost everywhere, between 0.25 and 1.25 ℃, with local underestimates in the Rocky Mountains and southwestern US. (d) shows the difference between the RCP8.5 multi-model mean minimum temperature for 2006-2015 and 2051-2060. Minimum temperatures are projected to increase everywhere across the United States, between 1.75 ℃ and 3 ℃.*



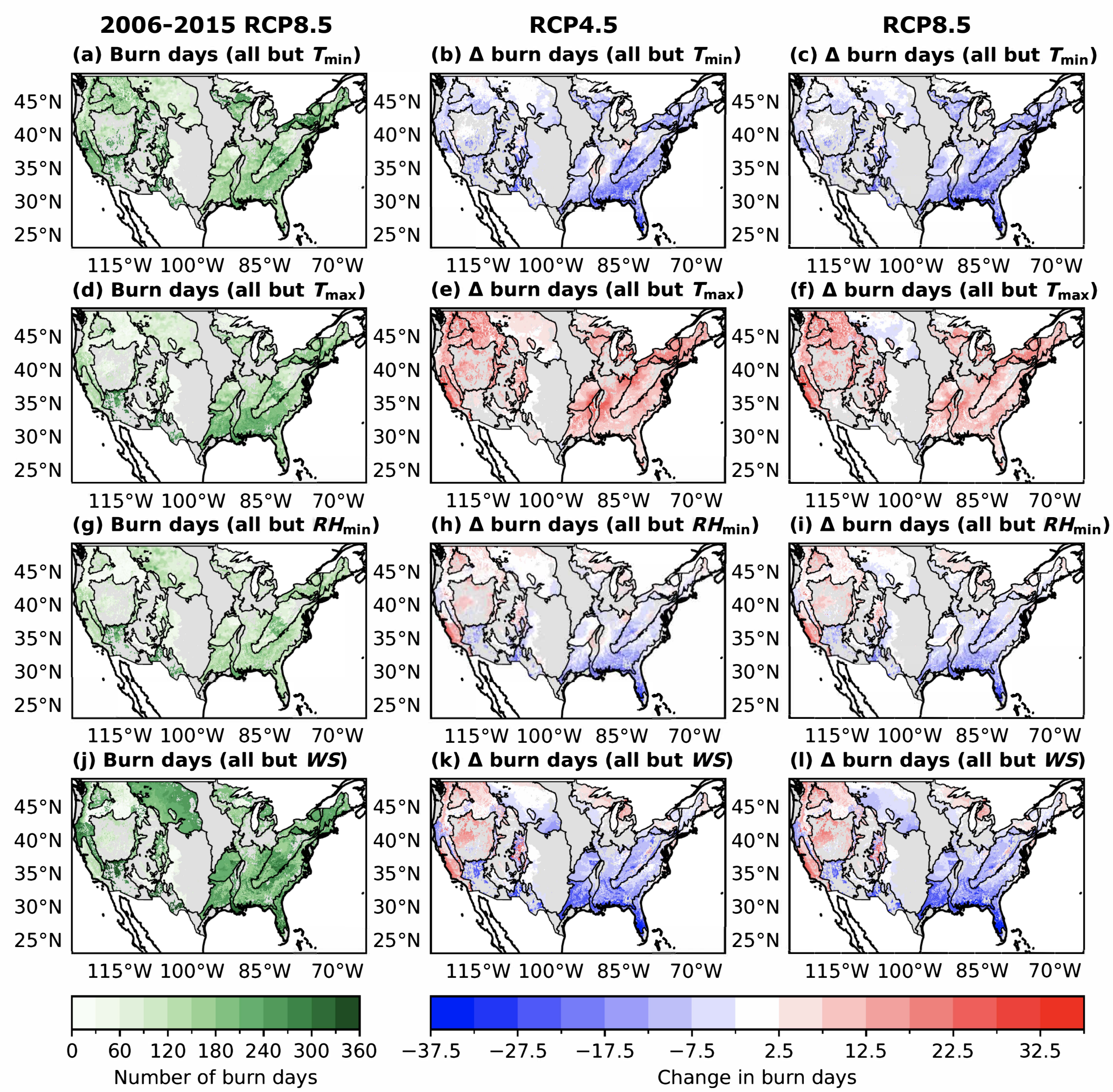
Supplementary Figure 2 *(b) Comparison of 2006-2015 daily maximum temperature between gridMET (a) and the average of 18 CMIP5 models for RCP8.5 (c). The climate model average overestimates maximum temperatures everywhere, with overestimates of up to 1.7 ℃ in the northern US and Rocky Mountains. (d) shows the difference between the RCP8.5 multi-model mean maximum temperature for 2006-2015 and 2051-2060. Maximum temperatures are projected to increase everywhere across the United States, between 1.5 ℃ and 3 ℃.*



Supplementary Figure 3 *(b) Comparison of 2006-2015 daily minimum relative humidity between gridMET (a) and the average of 18 CMIP5 models for RCP8.5 (c). The climate model average overestimates minimum relative humidity by up to 3 % along the California coast, across Texas and the southeastern US, with underestimates reaching the same magnitude everywhere else. (d) shows the difference between the RCP8.5 multi-model mean minimum relative humidity for 2006-2015 and 2051-2060. Minimum relative humidity is projected to decrease across the United States, with the strongest decreases of up to 3 % in the northern Rocky Mountains.*



Supplementary Figure 4 *(b) Comparison of 2006-2015 wind speeds between gridMET (a) and the average of 18 CMIP5 models for RCP8.5 (c). The climate model average underestimates winds almost everywhere by up to 0.5 m* s^{-1}*, with local overestimates in the Central Valley of California and southern Arizona. (d) shows the difference between the RCP8.5 multi-model mean wind speeds for 2006-2015 and 2051-2060. Winds are projected to decrease slightly across the western United States up to 0.27 m* s^{-1}*, with patches of both increases and decreases of around 0.1 m* s^{-1} *across the eastern United States.*



Supplementary Figure 5 *Burn opportunities due to select climate variables using a "leave one out" approach. Instead of calculating burn days for individual variables, as presented in Figure 3, here we have calculated burn days due to all but one climate variable at a time. 2006-2015 values for RCP8.5 (left) are compared against changes from 2006-2015 to 2051-2060 for RCP4.5 (center) and RCP8.5 (right). Climate variables include minimum temperature (a-c), maximum temperature (d-f), minimum relative humidity (g-i) and wind speed (j-l). Just as in the one-at-a-time analysis presented in Figure 3, wind is the largest constraint on available burn days (most burn days available when wind is excluded, see 5j), while RH presents the weakest constraint (fewest burn days available when RH is excluded, see 5g). We observe compensation between the impacts of T_{max} and T_{min} constraints on change in burn days under climate change. Excluding the T_{min} constraint leads to a decrease in burn days everywhere, while excluding the T_{max} constraint increases burn days everywhere.*

Supplementary Tables

Supplementary Table 1 List of the 18 CMIP5 models utilized in this study with references

Model Name	**Reference**
bcc-csm1-1	Wu et al. (2014)[1]
bcc-csm1-1-m	Wu et al (2014)[1]
BNU-ESM	Ji et al. (2014)[2]
CanESM2	Arora et al. (2011)[3]
CNRM-CM5	Voldoire et al. (2013)[4]
CSIRO-Mk3-6-0	Rotstayn et al. (2012)[5]
GFDL-ESM2G	Dunne et al. (2012)[6]
GFDL-ESM2M	Dunne et al. (2012)[6]
HadGEM2-CC365	Collins et al. (2011)[7]
HadGEM2-ES365	Collins et al. (2011)[7]
inmcm4	Volodin et al. (2010)[8]
IPSL-CM5A-LR	Dufresne et al. (2013)[9]
IPSL-CM5A-MR	Dufresne et al. (2013) [9]
IPSL-CM5B-LR	Dufresne et al. (2013) [9]
MIROC5	Watanabe et al. (2010)[10]
MIROC-ESM	Watanabe et al. (2011)[11]
MIROC-ESM-CHEM	Watanabe et al. (2011) [11]
MRI-CGCM3	Yukimoto et al. (2012)[12]

Supplementary References

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