Supporting Information for:

Summer Heat Sources Changes over the Tibetan Plateau in CMIP6 Models

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Contents of this file: Tables S1 and S2, Figures S1 and S2.

Table S1. Description of the 22 CMIP6 models used in this study, including model names, countries, horizontal resolutions, and data references. All data are available online at https://esgf-node.llnl.gov/projects/cmip6/.

Model Name	Country	Resolutions	Data References
ACCESS-CM2	Australia	144 × 192	Dix *et al* (2019a), Dix *et al* (2019b)
ACCESS-ESM1-5		145 × 192	Ziehn *et al* (2019a), Ziehn *et al* (2019b)
BCC-CSM2-MR	China	160 × 320	Wu *et al* (2018), Xin *et al* (2019)
CanESM5	Canada	64 × 128	Swart *et al* (2019a), Swart *et al* (2019b)
CESM2	USA	192 × 288	Danabasoglu (2019a), Danabasoglu (2019b)
CESM2-WACCM			Danabasoglu (2019c), Danabasoglu (2019d)
CNRM-CM6-1	France	128 × 256	Voldoire (2018), Voldoire (2019a)
CNRM-ESM2-1			Seferian (2018), Voldoire (2019b)
EC-Earth3	Europe	256 × 512	EC-Earth (2019a), EC-Earth (2019b)
EC-Earth3-Veg			EC-Earth (2019c), EC-Earth (2019d)
FGOALS-g3	China	80 × 180	Li (2019a), Li (2019b)
GFDL-CM4	USA	180 × 288	Guo *et al* (2018a), Guo *et al* (2018b)
GFDL-ESM4			Krasting *et al* (2018), John *et al* (2018)
HadGEM3-GC31-LL	UK	144 × 192	Ridley *et al* (2019), Good (2019)
IPSL-CM6A-LR	France	143 × 144	Boucher *et al* (2018), Boucher *et al* (2019)
MIROC6	Japan	128 × 256	Tatebe and Watanabe (2018), Shiogama *et al* (2019)
MIROC-ES2L		64 × 128	Hajima *et al* (2019), Tachiiri *et al* (2019)
MPI-ESM1-2-HR	Germany	192 × 384	Jungclaus *et al* (2019), Schupfner *et al* (2019)
MPI-ESM1-2-LR		96 × 192	Wieners *et al* (2019a), Wieners *et al* (2019b)
MRI-ESM2-0	Japan	160 × 320	Yukimoto *et al* (2019a), Yukimoto *et al* (2019b)
NESM3	China	96 × 192	Cao and Wang (2019), Cao (2019)
UKESM1-0-LL	UK	144 × 192	Tang *et al* (2019), Good *et al* (2019)

Table S2. 'Best 8 MME' projected changes of $\nabla \cdot \boldsymbol{V}_{500}$, ΔT_{500}, and $\Delta\theta_{se}$ over the eastern TP in summer. The ** symbol indicates a 'very likely' (90–100% probability) change (under two-tailed Student's t-test). The values without the asterisks denote their likelihood are 'about as likely as not' (33–66% probability).

	$\nabla \cdot \boldsymbol{V}_{500}$		ΔT_{500}: TP – EA		$\Delta\theta_{se}$: 200 hPa – 500 hPa	
	Change (s^{-1})	Relative Change	Change (°C)	Relative Change	Change (K)	Relative Change
'Best 8 MME'	1.24×10^{-7}	33.4%	-0.08	-5.3%	2.63**	10.1%**

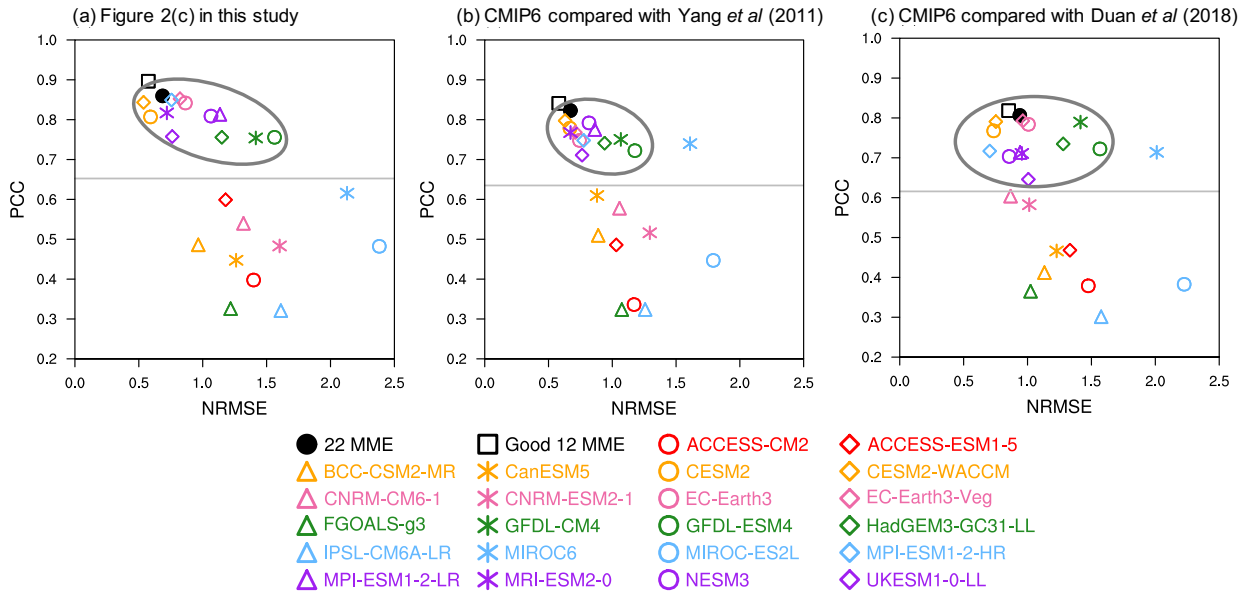

Figure S1. Performance of the 22 CMIP6 models and their MME (solid black dot) on simulating the observed SH pattern over the eastern TP. The reference observational data are provided by (a) Xie and Wang (2019), (b) Yang *et al* (2011), and (c) Duan *et al* (2018), respectively. The vertical and horizontal coordinates are PCC and NRMSE. The horizontal gray line indicates the mean value of the PCC of 22 models. The hollow black square depicts the MME of the selected twelve good models enclosed in the gray oval.

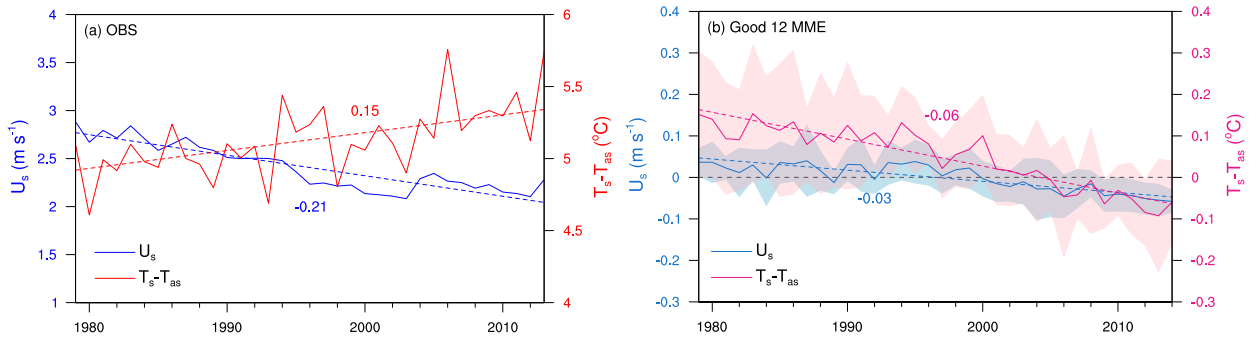

Figure S2. Time evolutions of the eastern-TP-averaged JJA surface wind speed (U_s; units: m s^{-1}) and ground-air temperature difference ($T_s - T_{as}$; units: °C) in (a) observation and (b) historical simulation by 'Good 12 MME'. The 1979–2014 climatological means have been removed in (b). The dashed lines indicate the linear trend of each curve, and the numbers near the lines denote the corresponding slopes of the trend per decade. The shading area in (b) displays the MME's uncertainty represented by intermodel spread, i.e., one standard deviation.

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