Supplementary Materials: Comparison of Relative and Absolute Heatwaves in Eastern China: Observations, Simulations and Future Projections

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Table S1. Twenty-seven CMIP6 models basic information.

Model	Institution/Country (Region)	Resolution
ACCESS-CM2	CSIRO/Australia	144 × 192
ACCESS-ESM1-5	CSIRO/Australia	145 × 192
AWI-CM-1-1-MR	AWI /German	192 × 384
BCC-CSM2-MR	BCC/China	160 × 320
CanESM5	CCCma/Canada	64 × 128
CESM	NCAR/USA	192 × 288
CMCC-ESM2	MCCC/Europe	192 × 288
CNRM-CM6-1	CNRM-CERFACS/France	128 × 256
CNRM-ESM2-1	CNRM-CERFACS/France	128 × 256
EC-Earth3	EC-Earth-Consortium/Europe	256 × 512
EC-Earth3-Veg	EC-Earth-Consortium/Europe	256 × 512
EC-Earth3-Veg-LR	EC-Earth-Consortium/Europe	160 × 320
FGOALS-g3	CAS/China	80 × 180
HadGEM3-GC3-LL	MOHC/UK	144 × 192
INM-CM4-8	INM/Russia	120 × 180
INM-CM5-0	INM/Russia	120 × 180
IPSL-CM6A-LR	IPSL/France	143 × 144
MIROC6	MIROC/Japan	128 × 256
MIROC-ES2L	MIROC/Japan	64 × 128
MPI-ESM-1-2-HR	MPI-M/Germany	192 × 384
MPI-ESM-1-2-LR	MPI-M/Germany	96 × 192
MRI-ESM2-0	MRI/Japan	160 × 320
NESM	NUIST/China	96 × 192
NorESM2-LM	NCC/Norway	96 × 144
NorESM2-MM	NCC/Norway	192 × 288
UKESM1-0-LL	MOHC/UK	144 × 192

The resolution is given in terms of total latitude × longitude grid points over the globe.

Table S2. Details of subregions in Eastern China.

Abbreviation	Full name	Latitude and longitude range
NEC	Northeast China	38°-54°N,121°-135°E
NC	North China	35°-45°N,110°-120°E
LYR	Lower Yangtze River	27°-34.5°N,115°-123°E
MYR	Middle Yangtze River	27°-34.5°N,103°-115°E
SC	South China	18°-26.5°N,108°-123°E

Table S3. Temporal correlations between RHW and AHW during present-day period.

Heatwave Features		NEC	NC	LYR	SC	MYR
OBS	R-HWAI & A-HWAI	0.72	0.87	0.91	0.86	0.88
	R-HWAD & A-HWAD	0.64	0.78	0.70	0.59	0.84
MME	R-HWAI & A-HWAI	0.72	0.82	0.94	0.86	0.91
	R-HWAD & A-HWAD	0.64	0.82	0.92	0.81	0.80

All values indicate statistical significance at the 0.05 level.

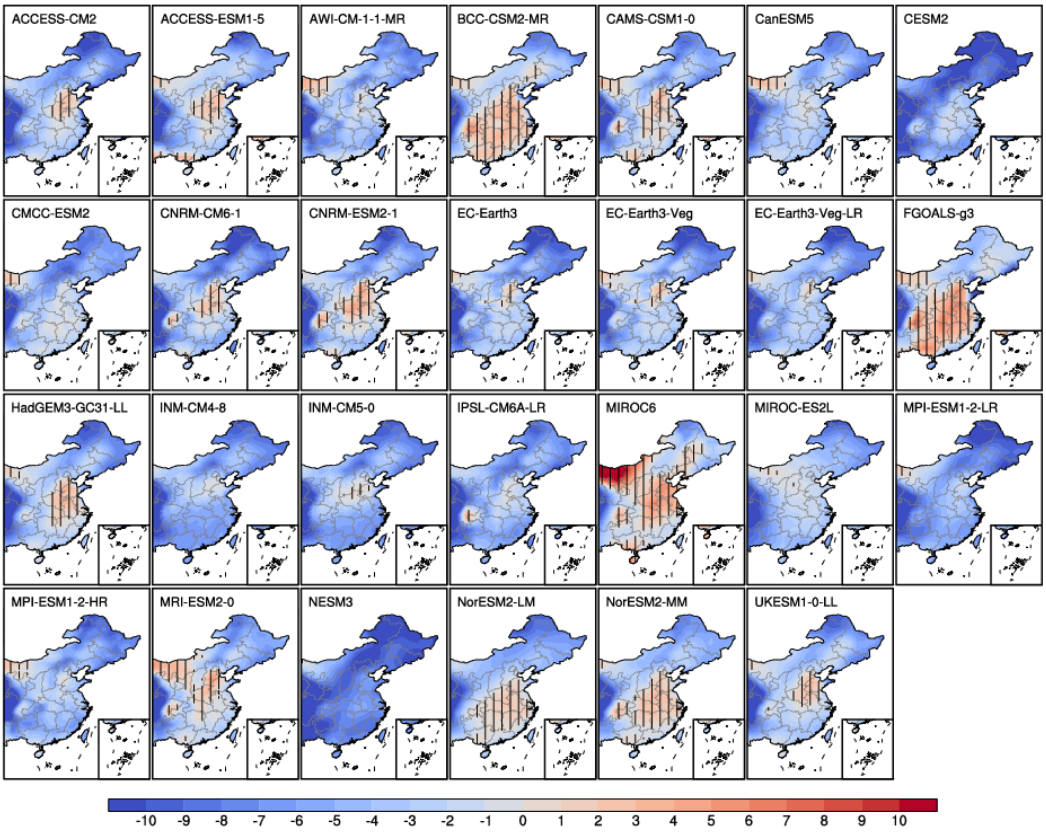

Figure S1. Differences between the relative threshold and the absolute threshold (35°C) for each CMIP6 model. The vertical-line areas indicate values greater than zero.

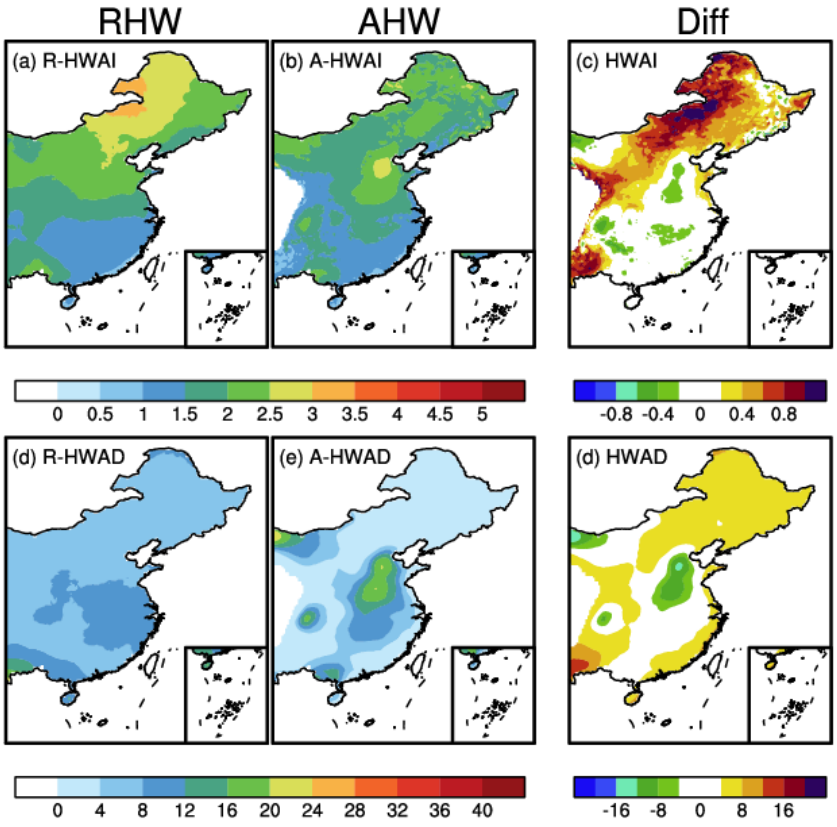

Figure S2. MME simulated heatwave indicators averaged for present-day (1995-2014). RHW (a & b) and AHW (d & e) represent the results calculated by the relative and the absolute thresholds. Diff

(c & f) is the result of RHW minus AHW. The units of HWAI and HWAD are °C and days, respectively.

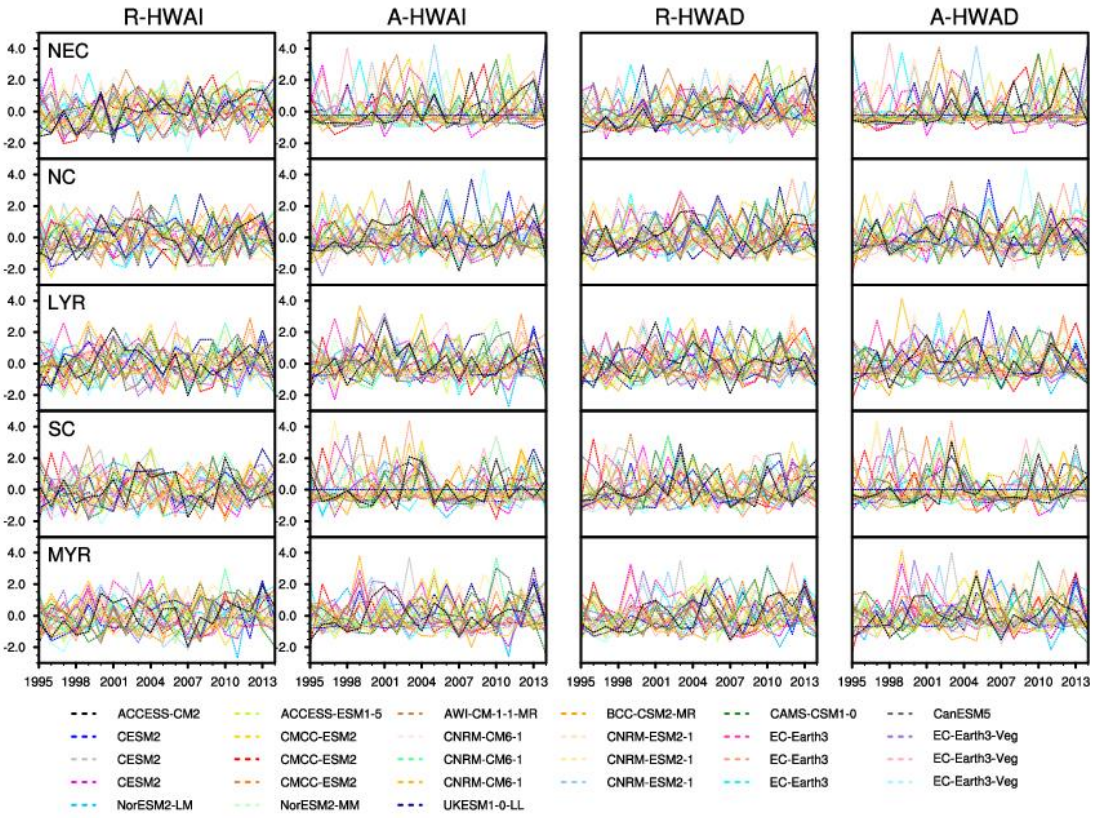

Figure S3. Standardized time series of R-HWAI, A-HWAI, R-HWAD, and A-HWAD from 1995 to 2014 for five sub-regions in EC. Colored dashed lines are the result of each model.

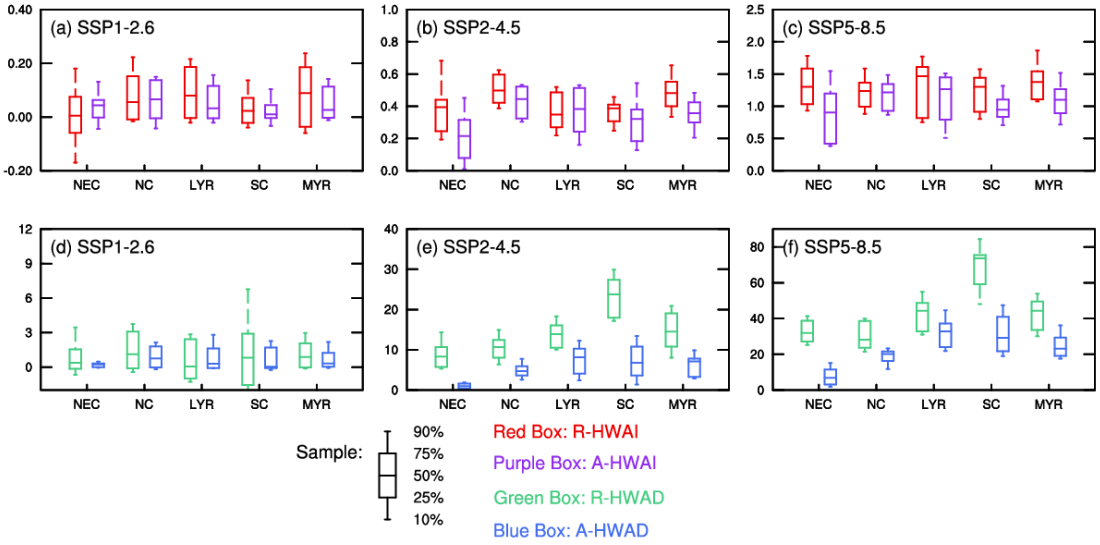

Figure S4. Regional mean changes in HWAI (°C) and HWAD (days) relative to 2041-2060 for 2081-2100 under SSP1-2.6 (a & d), SSP2-4.5 (b & e), and SSP5-8.5 (c & f). The red, purple, green, and blue box indicates R-HWAI, A-HWAI, R-HWAI, and A-HWAI, respectively. The box whisker plots are the 10th, 25th, 50th, 75th, and 90th intervals.

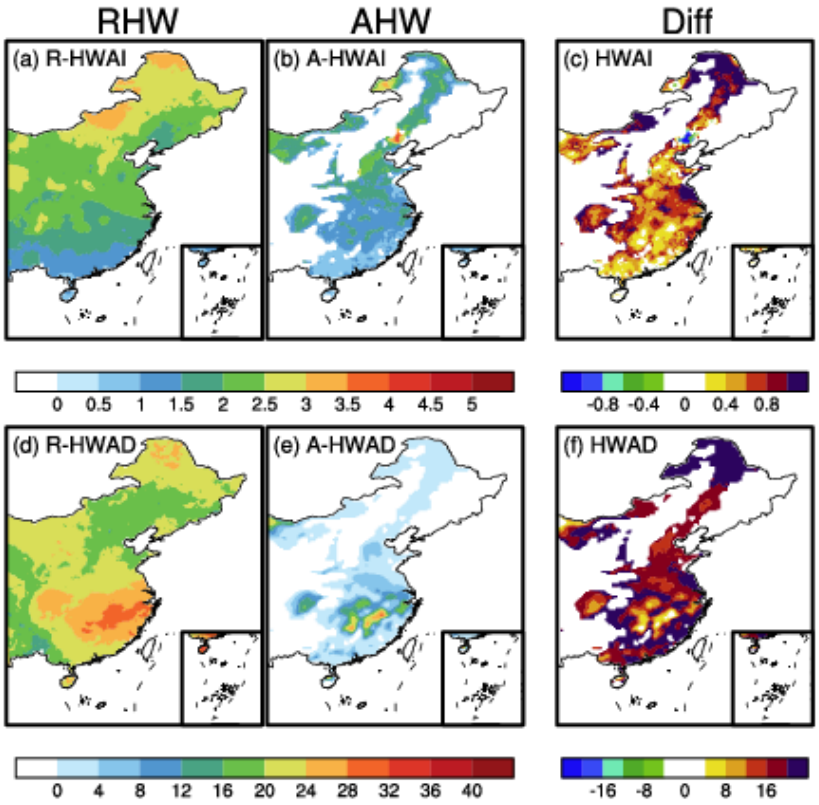

Figure S5. Same as Figure.3, but the minimum consecutive days for AHW was changed to 4 days.

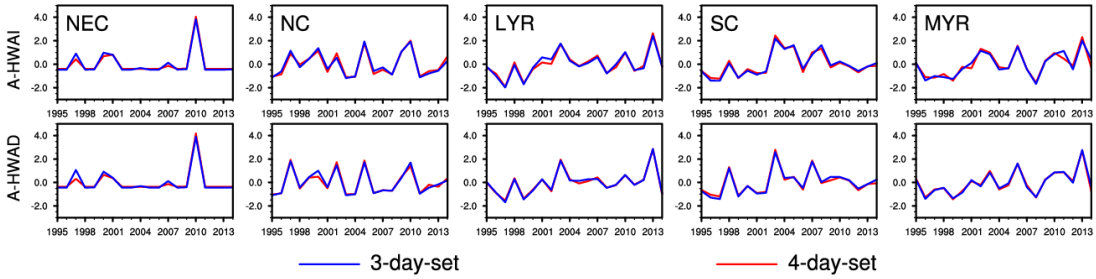

Figure S6. Standardized time series of AHW indicators from 1995 to 2014 for five sub-regions in EC. Blue and red solid lines indicate the 3-day-set (original) and 4-day-set AHW.