Supporting Information for

Anthropogenic climate change drives rising global heat stress and its spatial inequality

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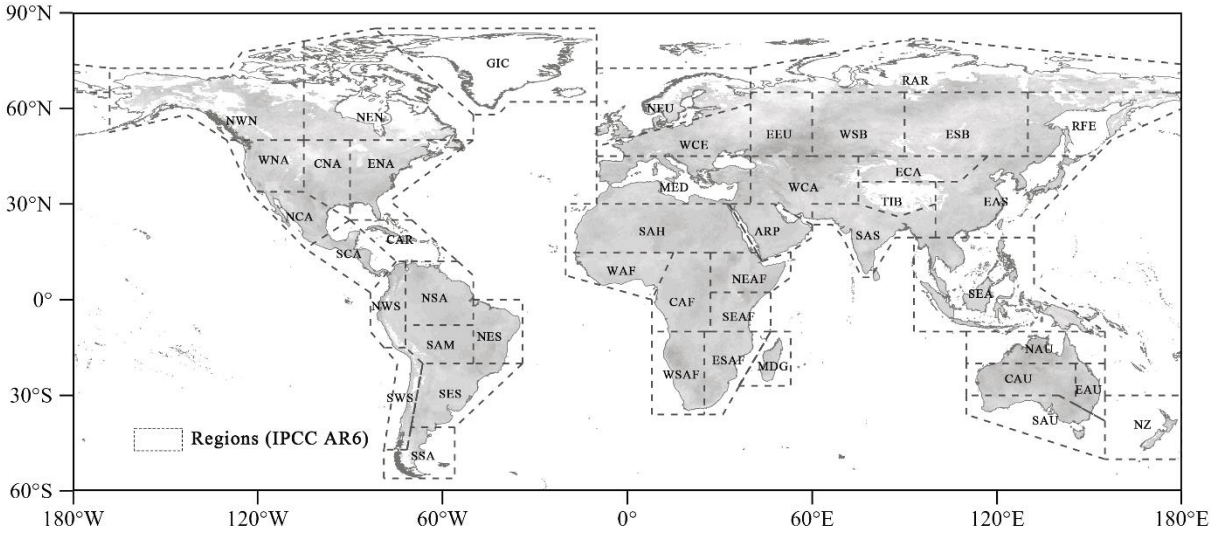

Supplementary Figure 1. Zoning map of the 44 IPCC AR6 reference land regions. The dashed outlines delineate the boundaries of each of the 44 land regions, and the labels indicate the corresponding region abbreviations The 44 land regions are: Greenland/Iceland (GIC), N.W. North-America (NWN), N.E. North-America (NEN), W. North-America (WNA), C. North-America (CNA), E. North-America (ENA), N. Central-America (NCA), S. Central-America (SCA), Caribbean (CAR), N.W. South-America (NWS), N. South-America (NSA), N.E. South-America (NES), South-American-Monsoon (SAM), S.W. South-America (SWS), S.E. South-America (SES), S. South-America (SSA), N. Europe (NEU), West & Central-Europe (WCE), E. Europe (EEU), Mediterranean (MED), Sahara (SAH), Western-Africa (WAF), Central-Africa (CAF), N. Eastern-Africa (NEAF), S. Eastern-Africa (SEAF), W. Southern-Africa (WSAF), E. Southern-Africa (ESAF), Madagascar (MDG), Russian-Arctic (RAR), W. Siberia (WSB), E. Siberia (ESB), Russian-Far-East (RFE), W. C. Asia (WCA), E. C. Asia (ECA), Tibetan-Plateau (TIB), E. Asia (EAS), Arabian-Peninsula (ARP), S. Asia (SAS), S.E. Asia (SEA), N. Australia (NAU), C. Australia (CAU), E. Australia (EAU), S. Australia (SAU), and New-Zealand (NZ).

Supplementary Table 1. Trends in mean heat stress intensity (°C·yr^{-1}) across global regions.

Continent	Name	Acronym	1981-2000	2001-2020
POLAR	Greenland/Iceland	GIC	0.0007	0.0025
NORTH-AMERICA	N.W.North-America	NWN	-0.0039	0.0120
	N.E.North-America	NEN	0.0042	-0.0089
	W.North-America	WNA	-0.0054	0.0093
	C.North-America	CNA	-0.0086	0.0074
	E.North-America	ENA	-0.0017	0.0102
CENTRAL-AMERICA	N.Central-America	NCA	0.0323	0.0268
	S.Central-America	SCA	0.0133	0.0266
	Caribbean	CAR	0.0227	0.0293
SOUTH-AMERICA	N.W.South-America	NWS	0.0007	0.0205
	N.South-America	NSA	0.0067	0.0257
	N.E.South-America	NES	0.0108	0.0300
	South-American-Monsoon	SAM	0.0175	0.0249
	S.W.South-America	SWS	0.0012	0.0146
	S.E.South-America	SES	0.0048	0.0167
	S.South-America	SSA	-0.0099	0.0141
EUROPE	N.Europe	NEU	-0.0015	0.0018
	West&Central-Europe	WCE	0.0233	0.0108
	E.Europe	EEU	0.0053	0.0096
EUROPE-AFRICA	Mediterranean	MED	0.0194	0.0252
AFRICA	Sahara	SAH	0.0170	0.0274
	Western-Africa	WAF	0.0078	0.0088
	Central-Africa	CAF	0.0098	0.0264
	N.Eastern-Africa	NEAF	0.0130	0.0314
	S.Eastern-Africa	SEAF	0.0106	0.0222
	W.Southern-Africa	WSAF	0.0000	0.0311
	E.Southern-Africa	ESAF	-0.0055	0.0211
	Madagascar	MDG	0.0077	0.0227
ASIA	Russian-Arctic	RAR	-0.0214	0.0018
	W.Siberia	WSB	0.0114	0.0175
	E.Siberia	ESB	0.0355	-0.0001
	Russian-Far-East	RFE	0.0199	0.0073
	W.C.Asia	WCA	0.0163	0.0288
	E.C.Asia	ECA	0.0286	-0.0005
	Tibetan-Plateau	TIB	0.0005	0.0029
	E.Asia	EAS	0.0050	0.0210
	Arabian-Peninsula	ARP	0.0267	0.0192
	S.Asia	SAS	-0.0026	0.0072
	S.E.Asia	SEA	-0.0002	0.0169
OCEANIA	N.Australia	NAU	-0.0230	0.0477
	C.Australia	CAU	-0.0185	0.0428
	E.Australia	EAU	-0.0455	0.0360
	S.Australia	SAU	-0.0088	0.0249
	New-Zealand	NZ	0.0071	0.0245

Supplementary Table 2. Trends in extreme heat stress days (days·yr^{-1}) across global regions.

Continent	Name	Acronym	1981-2000	2001-2020
POLAR	Greenland/Iceland	GIC	0.0386	0.1182
NORTH-AMERICA	N.W.North-America	NWN	0.0134	0.1698
	N.E.North-America	NEN	0.0037	0.0415
	W.North-America	WNA	0.0196	0.4345
	C.North-America	CNA	0.1421	0.3854
	E.North-America	ENA	0.0600	0.3387
CENTRAL-AMERICA	N.Central-America	NCA	0.9227	1.4933
	S.Central-America	SCA	0.4345	1.1133
	Caribbean	CAR	0.7930	1.3296
SOUTH-AMERICA	N.W.South-America	NWS	0.1073	1.5483
	N.South-America	NSA	0.4070	1.9914
	N.E.South-America	NES	0.3685	1.6919
	South-American-Monsoon	SAM	0.5287	1.8629
	S.W.South-America	SWS	0.0580	0.7082
	S.E.South-America	SES	0.3854	0.5606
	S.South-America	SSA	-0.1887	0.4021
EUROPE	N.Europe	NEU	0.1045	0.1121
	West&Central-Europe	WCE	0.2692	0.5357
	E.Europe	EEU	0.0760	0.4472
EUROPE-AFRICA	Mediterranean	MED	0.4632	0.7654
AFRICA	Sahara	SAH	0.6262	0.8212
	Western-Africa	WAF	0.2488	0.9898
	Central-Africa	CAF	0.2696	2.2988
	N.Eastern-Africa	NEAF	0.3393	1.8335
	S.Eastern-Africa	SEAF	0.4611	1.5760
	W.Southern-Africa	WSAF	0.3809	1.5277
	E.Southern-Africa	ESAF	-0.0554	1.0646
	Madagascar	MDG	0.1423	1.5862
ASIA	Russian-Arctic	RAR	-0.1396	0.1609
	W.Siberia	WSB	0.0742	0.1545
	E.Siberia	ESB	0.3161	0.0721
	Russian-Far-East	RFE	0.1880	0.1418
	W.C.Asia	WCA	0.5258	0.4466
	E.C.Asia	ECA	0.4571	0.1439
	Tibetan-Plateau	TIB	0.0657	0.1943
	E.Asia	EAS	0.3724	0.3887
	Arabian-Peninsula	ARP	0.8600	1.4438
	S.Asia	SAS	0.2067	0.4122
	S.E.Asia	SEA	0.2648	1.2498
OCEANIA	N.Australia	NAU	-0.5567	1.6911
	C.Australia	CAU	0.0170	1.2534
	E.Australia	EAU	-0.1414	1.0604
	S.Australia	SAU	-0.2873	0.4864
	New-Zealand	NZ	0.0508	0.6400

Supplementary Table 3. Climate models used within DAMIP.

Model	Ensemble Members Used	Historical Simulation	Natural-Forced Simulation	Spatial Resolution
ACCESS-ESM1-5	r1i1p1f1	1961–2014	1961–2020	1.875°×1.25°
BCC-CSM2-MR	r1i1p1f1	1961–2014	1961–2020	1.125°×1.125°
CanESM5	r1i1p1f1	1961–2014	1961–2020	2.8°×2.8°
FGOALS-g3	r1i1p1f1	1961–2014	1961–2020	2.25°×2°
GFDL-ESM4	r1i1p1f1	1961–2014	1961–2020	1.25°×1°
IPSL-CM6A-LR	r1i1p1f1	1961–2014	1961–2020	2.5°×1.25°
MIROC6	r1i1p1f1	1961–2014	1961–2020	1.4°×1.4°
MRI-ESM2-0	r1i1p1f1	1961–2014	1961–2020	1.125°×1.125°
NorESM2-LM	r1i1p1f1	1961–2014	1961–2020	2.5°×1.875°