

Table S1. Estimates of radiative feedback parameter, EffCS and TCR. λ_{his} and $\text{EffCS}_{\text{his}}$ values from *amip-piForcing*(*amip*) simulations are calculated from linear regressions over 1870 - 2014 (1979 - 2014); from *historical* simulations are over 1870 - 2014 and 1979 - 2014 (in bracket). $\lambda_{4\text{xCO}_2}$ and $\text{EffCS}_{4\text{xCO}_2}$ from *abrupt4xCO2* simulations are calculated from regressions of ΔN against ΔT over 150yrs of the simulations. TCR_{his} values from *historical* simulations are calculated by taking differences between 1995 - 2014 and 1869 - 1882. (Note that multi-model mean is calculated by averaging over all 8 models, except for *amip-piForcing* estimates, in which case multi-model mean is average of 6 available models)

Models	Feedback parameter [$\text{W m}^{-2} \text{K}^{-1}$]			EffCS [K]			TCR [K]	
	amipPF(amip)	historical	4xCO2	amipPF(amip)	historical	4xCO2	historical	1pctCO2
CanESM5	-1.46(-1.46)	-0.72(-0.66)	-0.65	2.49(2.50)	5.11(5.51)	5.64	2.60	2.75
CNRM-CM6-1	-1.26(-1.21)	-0.75(-0.67)	-0.74	3.01(3.13)	5.04(5.68)	4.90	2.45	2.23
GFDL-CM4	-1.90(-2.44)	-1.55(-1.40)	-0.82	2.04(1.6)	2.51(2.77)	3.89	1.39	2.05
GISS-E2-1-G	N/A (-1.64)	-1.26(-1.20)	-1.45	N/A (2.01)	2.61(2.76)	2.71	1.44	1.66
HadGEM3-GC31-LL	-1.33(-1.72)	-0.80(-0.63)	-0.63	2.92(2.26)	4.82(6.16)	5.55	1.96	2.47
IPSL-CM6A-LR	-1.64(-1.96)	-1.07(-0.89)	-0.75	2.30(1.93)	3.54(4.28)	4.56	2.16	2.39
MIROC6	-1.50(-1.75)	-1.23(-1.09)	-1.40	2.30(1.96)	2.79(3.15)	2.60	1.55	1.58
NorESM2-LM	N/A (-3.17)	-1.82(-1.60)	-1.34	N/A (1.18)	2.05(2.32)	2.56	1.15	1.48
Multi-model mean	-1.52(-1.92)	-1.15(-1.02)	-0.97	2.51(2.07)	3.54(4.06)	4.05	1.84	2.08