Table 9.5 | Effective radiative forcing (ERF), climate sensitivity and climate feedbacks estimated for the CMIP5 AOGCMs (see Table 9.1 for model details). ERF, equilibrium climate sensitivity (ECS) and transient climate response (TCR) are based on Andrews et al. (2012) and Forster et al. (2013) and updated from the CMIP5 archive. The ERF entries are calculated according to Hansen et al. (2005) using fixed sea surface temperatures (SSTs) and Gregory et al. (2004) using regression. ECS is calculated using regressions following Gregory et al. (2004). TCR is calculated from the CMIP5 simulations with 1% CO_2 increase per year (Taylor et al., 2012b), using the 20-year mean centred on the year of CO_2 doubling. The climate sensitivity parameter and its inverse, the climate feedback parameter, are calculated from the regression-based ERF and the ECS. Strengths of the individual feedbacks are taken from Vial et al. (2013), following Soden et al. (2008) and using radiative kernel methods with two different kernels. The sign convention is such that a positive entry for an individual feedback marks a positive feedback; the sum of individual feedback strengths must hence be multiplied by –1 to make it comparable to the climate feedback parameter. The entries for radiative forcing and equilibrium climate sensitivity were obtained by dividing by two the original results, which were obtained for CO_2 quadrupling. ERF and ECS for BNU-ESM are from Vial et al. (2013).

Model	Effective Radiative Forcing $2 \times CO_2$ (W m^{-2})		Equilibrium Climate Sensitivity (°C)	Transient Climate Response (°C)	Climate Sensitivity Parameter (°C (W m^{-2})$^{-1}$)	Climate Feedback Parameter (W m^{-2} °C^{-1})	Planck Feedback (W m^{-2} °C^{-1})	Water Vapour Feedback (W m^{-2} °C^{-1})	Lapse Rate Feedback (W m^{-2} °C^{-1})	Surface Albedo Feedback (W m^{-2} °C^{-1})	Cloud Feedback (W m^{-2} °C^{-1})
	Fixed SST	Regression									
ACCESS1.0	n.a.	3.0	3.8	2.0	1.3	0.8	n.a.	n.a.	n.a.	n.a.	n.a.
ACCESS1.3	n.a.	n.a.	n.a.	1.7	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
BCC–CSM1.1	n.a.	3.2	2.8	1.7	0.9	1.1	n.a.	n.a.	n.a.	n.a.	n.a.
BCC–CSM1.1(m)	n.a.	3.6	2.9	2.1	0.8	1.2	n.a.	n.a.	n.a.	n.a.	n.a.
BNU–ESM	n.a.	3.9	4.1	2.6	1.1	1.0	–3.1	1.4	–0.2	0.4	0.1
CanESM2	3.7	3.8	3.7	2.4	1.0	1.0	–3.2	1.7	–0.6	0.3	0.5
CCSM4	4.4	3.6	2.9	1.8	0.8	1.2	–3.2	1.5	–0.4	0.4	–0.4
CESM1(BGC)	n.a.	n.a.	n.a.	1.7	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
CESM1(CAM5)	n.a.	n.a.	n.a.	2.3	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
CNRM–CM5	n.a.	3.7	3.3	2.1	0.9	1.1	n.a.	n.a.	n.a.	n.a.	n.a.
CSIRO–Mk3.6.0	3.1	2.6	4.1	1.8	1.6	0.6	n.a.	n.a.	n.a.	n.a.	n.a.
FGOALS–g2	n.a.	n.a.	n.a.	1.4	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
GFDL–CM3	n.a.	3.0	4.0	2.0	1.3	0.8	n.a.	n.a.	n.a.	n.a.	n.a.
GFDL–ESM2G	n.a.	3.1	2.4	1.1	0.8	1.3	n.a.	n.a.	n.a.	n.a.	n.a.
GFDL–ESM2M	n.a.	3.4	2.4	1.3	0.7	1.4	n.a.	n.a.	n.a.	n.a.	n.a.
GISS–E2–H	n.a.	3.8	2.3	1.7	0.6	1.7	n.a.	n.a.	n.a.	n.a.	n.a.
GISS–E2–R	n.a.	3.8	2.1	1.5	0.6	1.8	n.a.	n.a.	n.a.	n.a.	n.a.
HadGEM2–ES	3.5	2.9	4.6	2.5	1.6	0.6	–3.2	1.4	–0.5	0.3	0.4
INM–CM4	3.1	3.0	2.1	1.3	0.7	1.4	–3.2	1.7	–0.7	0.3	0
IPSL–CM5A–LR	3.2	3.1	4.1	2.0	1.3	0.8	–3.3	1.9	–1	0.2	1.2
IPSL–CM5A–MR	n.a.	n.a.	n.a.	2.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
IPSL–CM5B–LR	n.a.	2.7	2.6	1.5	1.0	1.0	n.a.	n.a.	n.a.	n.a.	n.a.
MIROC5	4.0	4.1	2.7	1.5	0.7	1.5	–3.2	1.7	–0.6	0.3	0.1
MIROC–ESM	n.a.	4.3	4.7	2.2	1.1	0.9	n.a.	n.a.	n.a.	n.a.	n.a.
MPI–ESM–LR	4.3	4.1	3.6	2.0	0.9	1.1	–3.3	1.8	–0.9	0.3	0.5
MPI–ESM–MR	n.a.	n.a.	n.a.	2.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
MPI–ESM–P	4.3	4.3	3.5	2.0	0.8	1.2	n.a.	n.a.	n.a.	n.a.	n.a.
MRI–CGCM3	3.6	3.2	2.6	1.6	0.8	1.2	–3.2	1.6	–0.6	0.3	0.2
NorESM1–M	n.a.	3.1	2.8	1.4	0.9	1.1	–3.2	1.6	–0.5	0.3	0.2
NorESM1–ME	n.a.	n.a.	n.a.	1.6	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Model mean	**3.7**	**3.4**	**3.2**	**1.8**	**1.0**	**1.1**	**–3.2**	**1.6**	**–0.6**	**0.3**	**0.3**
90% uncertainty	**±0.8**	**±0.8**	**±1.3**	**±0.6**	**±0.5**	**±0.5**	**±0.1**	**±0.3**	**±0.4**	**±0.1**	**±0.7**