Table 1. Forcings and efficacies for greenhouse gases.

GHG Changes	Run Names	Fi	Fa[a]	Fa'[a]	Fs	Fs*[b]	δTo	ΔTs	Ei	Ea	Es	Es*	Fe[c]
1 × CO_2 = 291 ppm													
0.125 × CO_2	E2CO2E	-12.68	-10.94	--	-10.30	-10.10	-0.61	-4.56	0.78	0.90	0.95	0.98	-9.84
0.25 × CO_2	E2CO2Q	-8.88	-7.74	-7.56	-7.44	-7.21	-0.43	-3.32	0.81	0.92	0.96	0.99	-7.16
0.5 × CO_2	E2CO2H	-4.61	-4.07	-3.99	-3.91	-3.84±0.27	-0.22	-1.78±0.05	0.83	0.94	0.98±0.03	1.00	-3.84
1.25 × CO_2	E2c1Q	1.44	1.30	1.29	1.32	1.23±0.14	0.07	0.58±0.03	0.88	0.97	0.95±0.05	1.03	1.26
1.5 CO_2	**E2c1H**	**2.64**	**2.39**	**2.37**	**2.38**	**2.11**	**0.12**	**1.10**	**0.90**	**1.00**	**1.00**	**1.13**	**2.38**
2 × CO_2	E2c2	4.52	4.12	4.08	4.11	3.95±0.11	0.22	1.96±0.02	0.93	1.02	1.03±0.01	1.07	4.22
4 × CO_2	E2c4	9.27	8.53	8.41	8.58	8.14	0.45	4.06	0.95	1.03	1.02	1.08	8.77
8 × CO_2	E2c8	14.65	13.53	13.29	13.97	13.37	0.73	7.02	1.04	1.12	1.09	1.13	15.16
Specified Changes													
W-M GHGs(1880→2000)[d]	E2GHG	2.52	2.40	2.31	2.55	2.54±0.10	0.14	1.21±0.02	1.04	1.09	1.02±0.02	1.03	2.61
CO_2 (291 → 370 ppm)[d]	No Runs	1.55	1.40	--	--	--	--	--	--	--	--	--	--
CH_4 (837→ 1752 ppb)[d]	No Runs	0.51	0.53	--	--	--	--	--	--	--	--	--	--
CH_4 (837→3504 ppb)	E2CH4x2	1.10	1.15	1.05	1.20	1.18±0.12	0.07	0.59±0.01	1.15	1.10	1.05±0.02	1.07	1.27
CH_4 (837→9000 ppb)	E2CH4x5	2.11	2.17	2.00	2.28	2.29	0.13	1.14	1.16	1.13	1.08	1.07	2.46
N_2O (278→ 316 ppb)[d]	No Runs	0.15	0.15	--	--	--	--	--	--	--	--	--	--
N_2O (278→1898 ppb)	E2N2Ox6	3.55	3.47	3.28	3.62	3.49	0.21	1.67	1.02	1.04	1.00	1.04	3.62
MPTGs + OTGs (2000)[d]	No Runs	0.30	0.30	--	--	--	--	--	--	--	--	--	--
CFC11+CFC12 (4x2000)	E2CFCx4	1.02	1.04	1.01	1.41	1.38	0.08	0.64	1.34	1.32	0.97	0.99	1.37
Stratospheric H_2O by CH_4 Oxidation													
1880 to 2000 CH_4	E2ch4-E2o	---	---	---	0.061	0.036±0.01	0.000	0.027±0.01	---	---	0.96±0.31	1.49	0.058
none to 2000 CH_4	E2ch4-noch4	---	---	---	0.105	0.108±0.06	0.002	0.042±0.02	---	---	0.87±0.34	0.85	0.091
O_3 (1880→2000)													
Whole Atmosphere	E2oz	0.438	0.281	--	0.256	0.203±0.12	0.019	0.107±0.02	0.53	0.82	0.90±0.13	1.14	0.231
Troposphere	E2ozT	0.408	0.337	0.300	0.335	0.276±0.09	0.015	0.128±0.03	0.68	0.82	0.83±0.16	1.00	0.276

a: Fa uses tropopause defined by *WMO* [1957] while Fa' uses the *Hansen et al.* [2002] tropopause.

b: Fs* is asymptotic ($\Delta Ts \rightarrow 0$) planetary flux imbalance based on first 10 years of simulation with the specified agent.

c: Fe = EaFa = EsFs = $\Delta Ts / (\Delta Ts / Fa)_{1.5\times CO2} = \Delta Ts / 0.463$

d: Greenhouse gas amounts are 1880-2000 changes from *Hansen and Sato* [2004]. MPTGs are Montreal Protocol trace gases and OTGs are other trace gases tabulated by *Hansen and Sato* [2004].