Table O-1: Number of reference simulations by model

CCM	REF-B0: 2000 time slice	REF-B1: 1960-2006	REF-B2: 1960-2100
AMTRAC3	0	1 (to 2007)	1
CAM3.5	1	1	1
CCSRNIES	1	1	1
CMAM	1	3	3
CNRM-ACM	2 (20, 17 years)	2 (1960-2005)	1
E39CA	0	1 (to 2004)	0
EMAC	0	1 (to 2000)	0
GEOSCCM	1	1	1 (from 2000)
LMDZrepro	0	3	1
MRI	1/36yrs	4	2
Niwa-SOCOL	1	1	1 (by Dec2009)
SOCOL	1	3	3
ULAQ	1	4	3
UMETRAC	1	1 (in Dec 2009)	0
UMSLIMCAT	1 (15 years)	1 (45 years)	1
UMUKCA-METO	1	1	1 (to 2083)
UMUKCA-UCAM	1	1	1
WACCM	1	3	3

Table O-2: Control and sensitivity simulations, number of simulations per CCM.

CCM	CTL-B0 1960 time slice	SCN-B1 incl. brominated VSLS	SCN-B2a 2000-2100 Diff. GHG scen.
CCSRNIES	1	0	0
MRI	1	0	0
Niwa-SOCOL	1	1	0
ULAQ	1	0	0

Table O-2, continued.

CCM	SCN-B2b: 1960-2100, fixed halogens	SCN-B2c: 1960-2100, no climate ch.	SCN-B2d: 1960-2100, nat. forcing
CCSRNIES	1 (in Dec 2009)	0	0
E39CA	0	0	1 (to 2049)
ULAQ	0	1	0

Table O-3. Time stepping and calendar used. 360d = 360-day calendar. 365d = 365-day calendar. Greg= Gregorian calendar.

CCM	Time step of dynamical core [s]	Time step(s) of physical processes [s]	Time step(s) of radiation [s]	Time step(s) of transport scheme(s) [s]	Time step of chemistry scheme [s]	Time step for coupling of chemistry and dynamics [s}	Calendar
AMTRAC3	1800	1800	10800	1800	900	1800	Greg
CAM3.5	225	1800	1800	1800	1800	1800	365d
CCSRNIES	600 (variable)	600 (variable)	10800	600 (variable)	600 (variable)	600 (variable)	Greg
CMAM	720	720	720	720	720	720	365d
CNRM-ACM	1350	1350	10800	3600	900	21600	Greg
E39CA	1440	1440	7200	1440	1440	1440	360d
EMAC	900	900	2700	900	Automatic (3rd order Rosenbrock)	900	Greg
GEOSCCM	300	1800	3600	300	1800	1800	Greg
LMDZrepro	1800	1800	21600	900	900	1800	360d
MRI	900	900	3600	900	900	1800	365d
SOCOL Niwa-SOCOL	900	900	Heating rates: 900 Full rad.: 7200	GCM: 900 Tracers: 7200	7200	7200	360d
ULAQ	3600	3600	3600	3600	3600	3600	360d
UMETRAC	1800	1800	10800	1800	1800	1800	Greg
UMSLIMCAT	900	900	10800	900	1800	1800	360d
UMUKCA-METO	1200	2400	10800	1200	3600 (variable)	1200	360d
UMUKCA-UCAM	1200	2400	3600	1200	3600 (variable)	1200	360d
WACCM	225	1800	1800	1800	1800	1800	365d

Table O-4: References for physical parameterizations. LMDZrepro is investigating a problem with tropical UTLS water vapour. Table O-4 continues next page.

CCM	Turbulent vertical fluxes, dry convection	Moist convection	Cloud microphysics
CAM3.5	Holtslag and Boville (1993)	Neale et al. (2008) (deep) Hack (1994) (shallow)	Rasch and Kirstjánsson (1998)
CCSRNIES	Mellor and Yamada (1974)	Arakawa and Schubert (1974) Moorthi and Suarez (1992)	Large-scale condensation with prognostic cloud water scheme
CMAM	Scinocca et al. (2008)	Scinocca et al. (2008)	Scinocca et al. (2008)
CNRM-ACM	Ricard and Royer (1993)	Bougeault (1985)	Ricard and Royer (1993)
E39CA	Louis (1979); Brinkop and Roeckner (1995)	Tiedtke (1989) Brinkop and Sausen (1997)	Sundquist (1978)
EMAC	Tost et al. (2007)	Tost et al. (2007)	Lohmann and Roeckner (1996)
GEOSCCM	Louis et al. (1982) (stable PBL); Lock et al. (2000) unstable or cloud-topped PBL	Relaxed Arakawa-Schubert (RAS) (Moorthi and Suarez, 1992)	Sud and Walker (1999)
LMDZrepro	Hourdin et al. (2006)	Hourdin et al. (2006)	Hourdin et al. (2006)
MRI	Level2, no dry convection	Arakawa and Schubert (1974)	None
SOCOL Niwa-SOCOL	Tiedtke (1989) Louis (1979)	Brinkop (1991, 1992)	Sundqvist (1978); Tiedtke (1989)
ULAQ	Müller and Brasseur (1995)	Müller and Brasseur (1995)	Kärcher and Lohmann (2001)
UMETRAC UMSLIMCAT	Gordon et al. (1999)	Gregory et al. (1997, 1998)	Smith (1990)
UMUKCA-METO UMUKCA-UCAM	Martin et al. (2000)	Martin et al. (2000)	Martin et al. (2000)
WACCM	Holtslag and Boville (1993)	Neale et al. (2008) (deep) Hack (1994) (shallow)	Rasch and Kirstjánsson (1998)

Table O-4, continued

CCM	Aerosol microphysics	Cloud cover	Cloud microphysics
CAM3.5	N/A	Slingo (1987); Collins et al. (2004)	Collins et al. (2004)
CCSRNIES	N/A	Numaguti et al. (1997)	Le Treut and Li (1991)
CMAM	Scinocca et al. (2008)	Scinocca et al. (2008)	Scinocca et al. (2008)
CNRM-ACM	N/A	Strati: Ricard and Royer (1993) Conv: Bougeault (1985)	Ricard and Royer (1993)
E39CA	N/A	Sundquist (1978)	Sundqvist et al. (1989); Roeckner (1995)
EMAC	N/A	Tompkins (2002)	Lohmann and Roeckner (1996) with some revisions
GEOSCCM	N/A	Rienecker et al. (2008)	Sud and Walker (1999)
LMDZrepro	N/A	Hourdin et al. (2006)	Hourdin et al. (2006)
MRI	None	Relative humidity dependent	None
SOCOL Niwa-SOCOL	Koepke et al. (1997)	Sundqvist (1978)	Manzini and McFarlane (1998) Sundqvist (1978)
ULAQ	Pitari et al. (2002)	Rossow et al. (1987)	N/A
UMETRAC	Cussack et al. (1998)	Smith (1990)	Smith (1990)
UMSLIMCAT	N/A	Smith (1990)	Smith (1990)
UMUKCA-METO UMUKCA-UCAM	Martin et al. (2000)	Martin et al. (2000)	Martin et al. (2000)
WACCM	N/A	Slingo (1987); Collins et al. (2004)	Collins et al. (2004)

Table O-5: Surface, soil, and boundary layer schemes

CCM	Land surface scheme (reference)	Soil moisture (reference)	Planetary boundary layer scheme (reference)
CAM3.5	Bonan et al. (2002)	Bonan et al. (2002)	Holtslag and Boville (1993)
CCSRNIES	Kanae et al. (1995)	Manabe et al. (1965) Numaguti et al. (1997)	Louis (1979), Uno et al. (1995)
CMAM	CLASS 2.7 (Scinocca et al., 2008)	Scinocca et al. (2008)	Scinocca et al. (2008)
CNRM-ACM	ISBA, Noilhan and Planton (1989) – Douville et al. (2000)	ISBA, Noilhan and Planton (1989) – Douville et al. (2000)	Boundary layer based on Louis (1982) modified by Mascart et al. (1995)
E39CA	Dümenil and Todini (1992) Roeckner et al. (1992)	Roeckner et al. (1996)	Louis (1979); Roeckner et al. (1996)
EMAC	Roeckner et al. (2003)	Dümenil and Todini (1992)	Roeckner et al. (2003)
GEOSCCM	Koster et al. (2000)	Koster et al. (2000)	Lock et al. (2000)
LMDZrepro	Hourdin et al. (2006)	Hourdin et al. (2006)	Hourdin et al. (2006)
MRI	Improved SiB, 3 layers (Shibata et al., 2005)	Improved SiB, 3 layers (Shibata et al., 2005)	Mellor and Yamada (1974) level 2 Louis et al. (1982) surface layer
SOCOL Niwa-SOCOL	Blondin and Böttger (1987) Sellers et al. (1986) Fischer et al. (2008)	Warrilow et al. (1986)	Louis (1979)
ULAQ	N/A	N/A	Specification of emissions and deposition velocities: Müller and Brasseur (1995)
UMETRAC UMSLIMCAT	Cox et al. (1999)	Cox et al. (1999)	Cox et al. (1999)
UMUKCA-METO UMUKCA-UCAM	Martin et al. (2000)	Martin et al. (2000)	Martin et al. (2000)
WACCM	Bonan et al. (2002)	Bonan et al. (2002)	Holtslag and Boville (1993)