

# SUPPLEMENT

## HOW WELL DO COUPLED MODELS SIMULATE TODAY'S CLIMATE?

### Model Identifiers and Characteristics

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**T**ables S1 to S3 list the names and identifiers of the different models investigated in this study along with some of their main characteristics.

**TABLE S1. Identifiers and characteristics of the CMIP-I models included in this study. Grid resolution: longitude x latitude. L denotes number of vertical layers. The column for flux adjustment uses the following notation: H: heat; M: momentum; W: water; X: none.**

ID	Short Name	Model	Atmosphere	Ocean	Reference	Flux Adj.
01	BMRC	BMRCI, Australia	R21 (5.6 × 3.2), L9	5.6 × 3.2, L12	Power et al. 1993	X
02	CCCMA	CCCmaI, Canada	T32 (3.8 × 3.8), L10	1.8 × 1.8, L29	Boer et al. 2000	H, W
03	CCSR	CCSR, Japan	T21 (5.6 × 5.6), L20	2.8 × 2.8, L17	Emori et al. 1999	H, W
04	CERFACS	CERFACSI, France	T21 (5.6 × 5.6), L30	2.0 × 2.0, L31	Guilyardi and Madec 1997	X
05	COLA	COLAI, United States	R15 (7.5 × 4.5), L9	1.5 × 1.5, L20	Schneider and Zhu 1998	X
06	CSIRO	CSIRO, Australia	R21 (5.6 × 3.2), L9	5.6 × 3.3, L21	Gordon and O'Farrell 1997	H, W, M
07	GFDL	GFDL_R15_a, United States	R15 (7.5 × 4.5), L9	3.7 × 4.5, L12	Manabe and Stouffer 1996	H, W
08	GISSM	GISS (Miller), United States	5.0 × 4.0, L9	5.0 × 4.0, L16	Miller and Jiang 1996	X
09	GISSR	GISS (Russell), United States	5.0 × 4.0, L9	5.0 × 4.0, L13	Russell et al. 1995	X
10	IAP	IAP/LASGI, China	R15 (7.5 × 4.5), L9	5.0 × 4.0, L20	Zhang et al. 2000	H, W, M
11	LMD	LMD/IPSLI, France	3.8 × 5.6, L15	2.0 × 2.0, L31	Braconnot et al. 1997	X
12	MPIE3	ECHAM3+LSG, Germany	T21 (5.6 × 5.6), L19	4.0 × 4.0, L11	Voss et al. 1998	H, W, M
13	MPIE4	ECHAM4+OPYC3	T42 (2.8 × 2.8), L19	2.8 × 2.8, L11	Roeckner et al. 1996	H, W, M
14	MRI	MR11, Japan	5.0 × 4.0, L15	2.5 × 2.0, L21	Tokioka et al. 1996	H, W
15	NCARCSM	NCAR (CSM), United States	T42 (2.8 × 2.8), L18	2.4 × 2.0, L45	Boville and Gent 1998	X
16	NCARWM	NCAR (WM), United States	R15 (7.5 × 4.5), L9	1.0 × 1.0, L20	Washington et al. 2000	X
17	NRL	NRLI, United States	T47 (2.5 × 2.5), L18	2.0 × 1.0, L25	Li and Hogan 1999	H, W
18	UKMO	UKMO (HadCM2), United Kingdom	3.75 × 2.5, L19	3.75 × 2.5, L20	Johns et al. 1997	H, W

**TABLE S2. As in Table S1 but for CMIP-2 models.**

ID	Short Name	Model	Atmosphere	Ocean	Reference	Flux Adj.
a	BMRC	BMRC, Australia	R21 (5.6 × 3.2), L17	5.6 × 3.2, L12	Colman 2001	H, W, sfc SW rad.
b	CCCM	CCCma, CGCMI, Canada	T32 (3.8 × 3.8), L10	1.8 × 1.8, L29	Kim et al. 2003	H, W
c	CCSR	CCSR, Japan	T21 (5.6 × 5.6), L20	2.8 × 2.8, L17	Emori et al. 1999	H, W
d	CERF	CERFACS2 (ARPEGE/OPA2), France	T31 (3.9 × 3.9), L19	2.0 × 2.0, L31	Barthelet et al. 1998	X
e	CSIRO	CSIRO(Mk2), Australia	R21 (5.6 × 3.2), L9	5.6 × 3.2, L21	Hirst et al. 2000	H, W, M
f	MPIE3	ECHAM3+LSG, Germany	T21 (5.6 × 5.6), L19	4.0 × 4.0, L11	Voss et al. 1998	H, W, M
g	GFDL	GFDL_R15_a, United States	R15 (7.5 × 4.5), L9	3.7 × 4.5, L12	Dixon et al. 2003	H, W
h	GISS	GISS (Russell), United States	5.0 × 4.0, L9	5.0 × 4.0, L13	Russell and Rind 1999	X
i	IAP	IAP/LASG2, China	R15 (7.5 × 4.5), L9	5.0 × 4.0, L20	Zhang et al. 2000	H, W, M
j	LMD	LMD/IPSL2, France	5.6 × 3.8, L15	2.0 × 2.0, L31	Laurent et al. 1998	X
k	MRI	MRI2 (Tokioka), Japan	5.0 × 4.0, L15	2.5 × 2.0, L21	Tokioka et al. 1996	H, W
l	NCARC	NCAR(CSM), United States	T42 (2.8 × 2.8), L26	1.0 × (0.3–1.0), L40	Buja and Craig 2002	X
m	NCARW	NCAR-WM, United States	R15 (7.5 × 4.5), L9	1.0 × 1.0, L20	Washington and Meehl 1996	X
n	NRL	NRL2, Monterey	T47 (2.5 × 2.5), L18	1.0 × 1.0, L25	Li and Hogan 1999	H, W
o	PCM	DOE-PCM, United States	T42 (2.8 × 2.8), L18	0.67 × 0.67, L32	Washington et al. 2000	X
p	UKMO	UKMO (HadCM2), United Kingdom	3.75 × 2.5, L19	3.75 × 2.5, L20	Johns et al. 1997	H, W
q	UKMO3	UKMO (HadCM3), United Kingdom	3.75 × 2.5, L19	1.25 × 1.25, L20	Gordon et al. 2000	X

**TABLE S3. As in Table S1 but for CMIP-3 models.**

ID	Short name	Model	Atmosphere	Ocean	Reference	Flux Adj.
C	MIRCH	MIROC3.2 (hires), Japan	T106, L56	0.28 × 0.19, L47	K-I-model-developers 2004	X
D	MIRCM	MIROC3.2 (medres), Japan	T42, L20	1.4 × (0.5–1.4) L43	K-I-model-developers 2004	X
F	BCCRC	BCCR-BCM2.0, Norway	T63, L31	1.5 × 0.5, L35	Furevik et al. 2003	X
G	C3T47	CGCM3.1 (T47), Canada	T47 (3.75 × 3.75), L31	1.85 × 1.85, L29	Kim et al. 2002	H,W
H	C3T63	CGCM3.1 (T63), Canada	T63 (2.8 × 2.8), L 31	1.4 × 0.94, L29	Flato and Boer 2001	H,W
I	CNRMC	CNRM-CM3, France	T63 (2.8 × 2.8), L45	1.875 × (0.5–2), L31	Salas-Melia et al. 2005, manuscript submitted to <i>Climate Dyn.</i>	X
J	CSIRO	CSIRO-Mk3.0, Australia	T63, L18	1.875 × 0.84, L31	Gordon et al. 2002	X
K	GFD20	GFDL-CM2.0, United States	2.5 × 2.0, L24	1.0 × (1/3–1), L50	Delworth et al. 2006	X
L	GFD21	GFDL-CM2.1, United States	2.5 × 2.0, L24	1.0 × (1/3–1), L50	Delworth et al. 2006	X
M	GISSA	GISS-AOM, United States	4 × 3, L12	4 × 3, L16	Lucarini and Russell 2002	X
N	GISSH	GISS-EH, United States	5 × 4, L20	5 × 4, L13	Schmidt et al. 2006	X
O	GISSR	GISS-ER, United States	5 × 4, L20	5 × 4, L13	Schmidt et al. 2006	X
P	IAPFG	IAP-FGOALS1-0-G, China	2.8 × 2.8, L26	1 × 1, L16	Yu et al. 2004	X
Q	INMCM	INM-CM3.0, Russia	5 × 4, L21	2.5 × 2, L33	Volodin and Diansky 2004	W
R	IPSLC	IPSL-CM4, France	2.5 × 3.75, L19	2 × (1–2), L30	Marti et al. 2005	X
S	MPICM	ECHAM5/MPI-OM	T63, L32	1 × 1, L41	Min et al. 2005	X
T	MRICM	MRI-CGCM2-3-2A, Japan	T42, L30	2.5 × (0.5-2.0)	Yukimoto and Noda 2002	H,M,W
U	NCARC	NCAR-CCSM3, United States	T85L26, 1.4 × 1.4	1 × (0.27–1), L40	Collins et al. 2005	X
V	NCARP	NCAR-PCM, United States	T42 (2.8 × 2.8), L18	1 × (0.27–1), L40	Kiehl and Gent 2004	X
W	UKMOC	UKMO-HadCM3, United Kingdom	3.75 × 2.5, L19	1.25 × 1.25, L20	Gordon et al. 2000	X
X	UKMOG	UKMO-HadGEM1, United Kingdom	1.875 × 1.25, L38	1.25 × 1.25, L20	Johns et al. 2004	X
Y	INGVE	INGV-SXG, Italy	T42, L19	2 × (0.5-2), L31	Gualdi et al. 2003	X

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