Description RCM simulations in CLARIS LPB

Model

Short model name	PROMES
Full model name	PROgnostic at the MESoscale
Institute	Grupo MOMAC, Area Física de la Tierra, Facultad Ciencias Medio Ambiente, Universidad Castilla-La Mancha (momac.uclm.es)
Model version	PROMES 2.4
Contact person name	Enrique Sánchez Sánchez
Contact person email	e.sanchez@uclm.es
General references	Sanchez et al, 2007, Clim. Dyn, 29, 319-332 Dominguez et al, 2010, Clim. Dyn, in press, DOI: 10.1007/s00382-010-0769-3

Experimental setup

Name of domain	South America
Size of full grid (x-y-vertical)	145x163x37
Horizontal resolution	50 x50 km
Type of grid	Lambert conformal
Lateral Boundary Relaxation number of grid points	15
Nudging (if yes, provide some description spectral, variables, levels)	No
Boundary zone excluded (grid points)	15
Size of post-processed output grid (x-y)	130x148

ERA-INTERIM

Time period	1990-2008
Source of boundary condition	ERA-INTERIM
Initial conditions	ERA-Interim
Spin up period	Jan-Dec 1989 (3 times)
Internal reference of simulation	

A1B GCM

Time period	1961-2100
Source of boundary condition	HadCM3-Q0
Initial condition	HadCM3-Q0
Spin up period	Jan-Dec 1960 (3 times)
Internal reference of simulation	

General model description

Process:	Description:	Reference:
Dynamics	Split-explicit integration scheme. Conservative vertical interpolation of large scale to model levels	Gadd (1978) Gaertner and Castro (1996)
Radiation	The shortwave and longwave radiation processes are modelled according ECMWF parameterizations	Morcrette (1991) ECMWF (2004)
Cloud fraction	Coupled with Morcrette radiation scheme	Chaboureau and Bechtold (2002,2005)
Turbulence	Turbulent kinetic energy (TKE) scheme, combined with a diagnostic mixing length	Cuxart et al. (2000)
Explicit cloud and precipitation	Large-scale (resolved) clouds includes microphysics of ice	Hong et al. (2004)
Convection	Described with an entraining and detraining plume model	Kain and Fritsch (1993) Kain (2004)
Land-surface scheme	ORCHIDEE, with two modules (surface-vegetation-atmosphere transfer, SECHIBA; and dynamical vegetation, LPJ). Also carbon cycle model is included (STOMATE)	Krinner et al. (2005) De Rosnay and Polcher (1998) Sitch et al. (2003)
Fluxes over sea	Prognostic roughness length (Charnock)	Louis et al. (1982)

Details in model description

Land-surface processes

Specification:	Description:	Reference:
Land cover map	ECOCLIMAP	Masson et al. (2003)
Soil map	ECOCLIMAP	Masson et al. (2003)
Orography data	GTOPO30	Verdin and Greenlee (1996)
No of sub surfaces (tiles)	13	
Interactive vegetation	No	
Soil layers for temperature	7 layers, from 4 cm to 2.5m. Total depth: 5,5 m	
Soil layers for humidity	11 layers with thickness from 2mm to 1m. Total depth: 2m	

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