List of HadAM3/C20C model output used for the West African Monsoon Modelling and Evaluation project WAMME (Phase I)

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"Data from the HadAM3 model were provided by the Hadley Centre, and funded by the UK Department for Environment, Food and Rural Affairs under contract PECD 7/12/37."

1. OBJECTIVES:
This note documents the model outputs provided by the Hadley Centre atmospheric only general circulation model HadAM3 for the WAMME project.

2. SPATIAL COVERAGE:
HadAM3 has a regular grid of 3.75deg longitude x 2.5deg latitude, i.e.
73 x 96 points. The latitude and longitude ranges of the grid points are 90.0N - 90.0S, 0.0E - 356.25E.

3. TEMPORAL COVERAGE:
Data are provided only at monthly and daily timescales in a month chunk files with the 360 calendar. The period of data availability is 01 Jan 2000 to 30 Dec 2005.

4. FORMAT:
The model outputs are given in netcdf CF1.0 format, which we believe would be easier to handle by users than the model native binary format.

5. EXPERIMENTAL DESIGN:
Four C20C ensemble member integrations were conducted for the 6-period **1999-2007**. The run identifiers of these simulations are respectively "afoif, afoig, afoih, afoii". All were forced by the HadISST1.1 global reconstruction of observed SST and sea-ice extents (Rayner et al. 2003), which were processed to preserve their monthly means during the model integration (Taylor et al. 2000). They were also forced by time-varying concentrations of well-mixed greenhouse gases including CO2, CH4, N2O, CFCs, HCFCs, tropospheric ozone and stratospheric ozone (the latter from 1975), changes in land use, anthropogenic sulphate aerosols, volcanic aerosols, and solar irradiance variations. The ensemble members differ only in their initial atmospheric conditions, which were taken from an earlier HadAM3 simulation.

Further details of the forcing data are available on request.

Pope, V.D., Gallani, M., Rowntree, P.R. and Stratton, R.A. 2000 The impact of new physical parametrizations in the Hadley Centre climate model - HadAM3. Clim. Dyn., 16, 123-146

Rayner, N.A., Parker, D.E., Horton, E.B., Folland, C.K., Alexander, L.V., Rowell, D.P., Kent, E.C., and Kaplan, A., 2003: Global analyses of sea surface temperature, sea ice, and night marine air temperature since the late nineteenth century. J. Geophys. Res., 108(D14), 4407, doi: 10.1029/2002JD002670

Taylor, K.E., Williamson, D., and Zwiers, F., 2000: The sea surface temperature and sea-ice concentration boundary conditions for AMIP II simulations. PCMDI Report No. 60, Lawrence Livermore National Laboratory, Livermore, CA, 25 pp

6. FILE NAMING CONVENTION:
{RUNID}-m{X}. {Variable}. {Timescale}. {MON} {YR}.nc
Where

{RUNID} is the run identifier;

{X} is the ensemble member identifier. For instance:
X=1 is afoif; X=2 is afoig; X=3 is afoih, and X=4 is afoii.

{Variable} is the name of the meteorological variable as specified in the WAMME output list (http://wamme.geog.ucla.edu/output.html).

{Timescale} is the timescale of the averaged variables, i.e. monthly, daily or hourly.

{MON} are the first three letters for a given month, ie. jan, feb, mar, apr, may, jun .. etc.

{YR} represents the year of the simulation.

Examples:

- The file "hadam3-c20c-m1.lspre.monthly.may2005.nc" contains "afoif" monthly mean large scale precipitation for May 2005;
- The file "hadam3-c20c-m1.lspre.daily.may2005.nc" contains "afoif" daily mean large scale precipitation for May 2005;

7. OUTPUT LIST

Monthly mean 3D variables

(Pressure levels (13): 1000, 925, 850, 700, 600, 500, 400, 300, 250, 200, 150, 100, 50)

1) Temperature	(K)	ta
2) Zonal wind	(m/s)	ua
3) Meridional wind	(m/s)	va
4) Specific humidity	(g/kg)	hus
5) Geopotential height	(gpm)	zg
6) Relative humitidy	(%)	hur
7) Vertical wind	**(m/s)**	**Wa**

Monthly and daily mean 2D variables

1) Sea level pressure	(hPa)	psl
2) Precipitation	(mm/day)	pr
3) Large scale precipitation	(mm/day)	lspre
4) Convective precipitation	(mm/day)	conpre
5) Surface air temperature (2m)	(K)	tas
6) Surface air specific humidity (2m)	(g/kg)	huss
7) Zonal surface wind speed (10m)	(m/s)	uas
8) Meridional surface wind speed (10m)	(m/s)	vas
9) Surface latent heat flux	(W/m^2)	hfls
10) Vegetation interception loss	(W/m^2)	evap

11) Transpiration	(W/m^2)	etv
12) Soil evaporation	(W/m^2)	esoil
13) Surface sensible heat flux	(W/m^2)	hfss
14) Surface ground heat flux	(W/m^2)	hfgs
15) Surface downwelling LW radiation	(W/m^2)	hfgs
16) Surface upwelling LW radiation	(W/m^2)	rlus
17) Surface downwelling SW radiation	(W/m^2)	rsds
18) Surface upwelling SW radiation	(W/m^2)	rsus
19) SW upwelling radiative flux at TOA	(W/m^2)	rsut
20) LW upwelling radiative flux at TOA	(W/m^2)	rlut
21) Available soil water content	(m)	tsw
22) Surface runoff rate	(kg/m2/s)	mrros
23) Total cloud cover fraction		clt
24) Geopotential height at 500mb	(gpm)	z500
25) Geopotential height at 850mb	(gpm)	z850
26) Boundary layer height	(m)	zmla
27) Surface pressure	(Pa)	ps
28) Relative humidity at 850mb	(%)	hur
29) Subsurface runoff	(kg/m2/s)	8235
30) Surface temperature	(K)	ts
31) Geopotential height at 700mb	(gpm)	z700
32) Geopotential height at 925mb	(gpm)	z925
33) Zonal wind at 850mb	(m/s)	ua
34) Meridional wind at 850mb	(m/s)	va
35) Temperature at 850mb	(K)	ta
36) Specific humidity at 850,500,300,200mb	(g/kg)	hus

Note: Daily mean variables include also the surface temperature maximum (tmax) and minimum (tmin)

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