

Using the BRIDGE web pages:

<http://www.bridge.bris.ac.uk/resources/simulations>

or

<https://www.paleo.bristol.ac.uk/ummodel/scripts/papers/>

All simulations performed by members of the BRIDGE group are automatically added to our web server and are potentially made public. The vast majority of the simulations are performed with HadCM3 and its derivatives (HadAM3, HadAM3H, HadCM3L, HadRM3, FAMOUS). There are a few HadGEM2 runs included but these are currently poorly supported.

There are a large number of simulations on the site (>40000). The large number is due to two reasons. Firstly, the system has been running for ~30 years so this really is an accumulation of a lot of work. Secondly, we are increasingly performing ensemble simulations (with either a variety of boundary conditions, or perturbed physics parameters) and these can generate several hundred simulations for one overarching experiment.

For each simulation, the webpages contain summary data and methods to access the data. When we run the models, we typically save a lot of model output for every month of the run and often include daily as well as monthly mean data. We cannot hold all this output online so, once a simulation is complete, we run a post-processing script that produces a summary of the simulation, such as climate means and time series of a few key variables. The original raw data is then archived to tape but the summary data remains online (currently we have never deleted the summary data for any simulations but at some point we will probably run out of disk space).

The data gets uploaded automatically as part of the post-processing of the runs and it is fully possible that a simulation becomes available before it has been looked at by the originator of the experiment. Although there is considerable quality control processing, there will sometimes be bugs and errors so please treat all outputs carefully and report back any surprising or strange results.

The web pages serve two purposes. They firstly act as a “database” and archive of our work. Secondly, they ease access of the model output for others, by allowing people to produce their own plots and to download the actual data. The following is a brief description of this latter role.

### Simulations

All simulations are given a unique 5 (or sometimes 6-character) reference code. These are randomly assigned and have no particular meaning (e.g. tdlag). For most simulations, 5 letters are sufficient to describe the run but a sixth character (0-9,a-z) is added if it is a long run that has been processed in several “chunks” (i.e. if a run is for 3000 years, but we wanted to look at the 1<sup>st</sup> 1000 years, 2<sup>nd</sup> 1000 years and 3<sup>rd</sup> 1000 years separately, then the simulation may be called tdlag1, tdlag2 tdlag3).

The webpages will give a brief description of each run, but it is brief! Be VERY careful. Sometimes runs may simply say “This is an LGM simulation with HadCM3” or equivalent. This does not give enough information to know exactly what has gone into the design of the simulation. For instance, it could be a sensitivity test where it is LGM gases but no ice sheet. So please, before using any run, contact BRIDGE to check and verify whether the simulation is optimum for your purposes.

## 1. Webpage Structure

The webpages contain two sections.

- (a) “Table of Experiments”: This takes you to a table listing all the simulations that you have access to. You may subset this list by using parts of the experiment names (e.g. if you enter tdla into the expt name box, then you will get all simulations starting with tdla).

If you click on a particular simulation, then you get a description of the simulation and a set of pre-defined images of common climate variables. The page may also contain some images showing the changes (anomaly) from another simulation.

- (b) “Analysis\_Pages”: This section of the webpage is more complex and allows you to make your own plots, and to access the actual data. The pages are split into a variety of different types of variable to be output. There are more than 1000 different variables potentially available, though any particular simulation might not contain all output options (hence you often will get a message saying that variable is not available).

The most common page to use is the “Near Surface or Single Level Atmos plots”. Within this page, you can plot temperature, precipitation etc. You can change projection, select the time of year, override default contour intervals, zoom in on areas, etc. You can also take the difference between two simulations. For a few plots, you can even do simple statistical tests.

Other important parts of these page are the “Atmos and Surface Time Series” (and equivalently the “Ocean Time Series”) where you plot out time series for the whole run including spin-up period.

Please feel free to explore the pages.

## 2. Papers Pages

As well as having the full simulation set from BRIDGE researchers, the web pages also give access to model simulation published in various papers. The simulations from the papers can be accessed here:

<https://www.paleo.bristol.ac.uk/ummodel/scripts/papers/>

The pages lists the paper and if you pick a paper, it will give a brief list of the simulations, as well as links to the table of experiments section. There is also a link (from the line “You can have make you own analysis and plots by going here”) to go to the analyses section.

### 3. Access to the Actual Data

There are three ways to access the actual underlying summary data for the simulations. Go to the “Analysis\_Pages” section of the web page, select the experiment you want to access data for and do one of the three methods below:

- (1) In the drop-down menu for projection, there are data options which will output the data on the model grid, or on a variety of different interpolated grids. These may also include ARCINFO headers. The output is raw ASCII numbers.
- (2) At the bottom of the menu, there is a “Format” drop down menu. Within this there is an option to download the whole netcdf file from which the variable is stored, or to download a netcdf file with only that variable
- (3) You can also use the wget command if you wish to access a lot of data. However, to do this you need to know about the file/folder structure

#### 4. Structure of Database

All data is stored as netcdf. Most of it should be CF-compliant but this is not true for older simulations and a few unusual (model dependent) variables may also not satisfy full CF coding. The data sits in a variety of files and sub-folders, within an overarching folder that is the simulation name. In the following, it is simplest to illustrate the file naming convention using an example. We will use tcmfa3. This is the third part of a pre-industrial simulation using HadCM3-MOSES1. It was the “control” pre-industrial run in the Singarayer and Valdes (2010) paper. The overarching folder is called: ummodel/data/tcmfa3. The following are the two key sub-folders:

- (a) All climate means are stored in a sub-folder called climate. A typical file name is

tcmfa3a.pdclfeb.nc for experiment tcmfa3

where 6<sup>th</sup> (or 7<sup>th</sup>) character can be **a** (atmosphere, or land) or **o** (ocean)

8<sup>th</sup> and 9<sup>th</sup> (or 9<sup>th</sup> and 10<sup>th</sup>) character can be

**pd** = monthly means of surface or single level variables (e.g. fluxes at top of atmos)

**pc** = upper air variables on pressure or other vertical coordinate

**pf** = ocean monthly means

**pg** = ocean annual means (typically contains more levels than the pf files)

**pt** = triffid (land surface) variables

**rd** = number of rainy days.

10<sup>th</sup> and 11<sup>th</sup> (or 11<sup>th</sup>/12<sup>th</sup>) character is **cl**= climate means or **sd**= standard deviations.

12<sup>th</sup> to 14<sup>th</sup> (or 13<sup>th</sup>/14<sup>th</sup>) character will be **jan**, or **feb** .. **djf**, **mam**, **jja**, **jjs**, **son**, or **ann**

where **jjs** is the mean over JJAS. Note that the pg file will only be ann.

The files contain CF-compliant variables using units which are not necessarily obvious. E.g. precipitation is stored in units of kg/m<sup>2</sup>/s which you then must multiply by the density of water, divide by 1000, and multiply by number of secs in day (86400) to get mm/day.

- (b) Time series of a few key variables are stored in the folder monthly. These contain single variables for every month that the model was run, including any spinup period. The number of variables available depends on the run. All simulations will have temp\_mm\_1\_5m (surface air temperature) and precip\_mm\_srf (precipitation) but other variables will depend on the simulation. Typical files will be called:

tcmfa.temp\_mm\_1\_5m.monthly.nc

tcmfa3.temp\_mm\_1\_5m.monthly.nc

Some variables will only be available as annual means. The following is a full list of variables typically archived as the full time series from the runs. Most of the names are CF compliant so should be familiar.

GBMlitCarb\_snp\_srf

GBMvegCarb\_snp\_srf

anomSaltFlux\_ym\_uo

clrskyDownSol\_mm\_s3\_srf

clrskyUpSol\_mm\_s3\_TOA

convclد\_mm\_ua

csilr\_mm\_s3\_srf

csolr\_mm\_s3\_TOA

downSol\_Seaice\_mm\_s3\_srf

downSol\_mm\_TOA

fracPFTs\_mm\_srf\_01

fracPFTs\_mm\_srf\_02

fracPFTs_mm_srf_03	salinity_ym_dpth_666
fracPFTs_mm_srf_04	sh_mm_hyb
fracPFTs_mm_srf_05	sm_mm_soil
fracPFTs_mm_srf_06	snowdepth_mm_srf
fracPFTs_mm_srf_07	soilCarbon_mm_srf
fracPFTs_mm_srf_08	soiltemp_mm_soil
fracPFTs_mm_srf_09	solar_mm_s3_srf
highCloud_mm_ua	solar_mm_s3_trop
ht_mm_p_500	temp_mm_1_5m
iceconc_mm_srf	temp_mm_srf
icedepth_mm_srf	temp_mm_uo
ilr_mm_s3_srf	temp_ym_dpth_2731
ilr_mm_s3_trop	temp_ym_dpth_5
lh_mm_srf	temp_ym_dpth_666
longwave_mm_s3_srf	theta_mm_hyb
longwave_mm_s3_trop	totCloud_mm_ua
lowCloud_mm_ua	totCloudranmax_mm_ua
medCloud_mm_ua	totalEvap_mm_srf
merid_Atlantic_mm_dpth	u_mm_10m
merid_Atlantic_ym_dpth	u_mm_p_200
merid_Global_mm_dpth	u_mm_p_850
merid_Global_ym_dpth	ucurrTot_mm_dpth_5
merid_Indian_mm_dpth	ucurrTot_ym_dpth_2731
merid_Indian_ym_dpth	ucurrTot_ym_dpth_5
merid_Pacific_mm_dpth	ucurrTot_ym_dpth_666
merid_Pacific_ym_dpth	upSol_mm_s3_TOA
mixLyrDpth_mm_uo	upSol_mm_s3_trop
olr_mm_s3_TOA	v_mm_10m
p_mm_msl	v_mm_p_200
p_mm_srf	v_mm_p_850
precip_mm_srf	vcurrTot_mm_dpth_5
q_mm_1_5m	vcurrTot_ym_dpth_2731
salinity_mm_dpth_5	vcurrTot_ym_dpth_5
salinity_ym_dpth_2731	vcurrTot_ym_dpth_666
salinity_ym_dpth_5	

For a few simulations, there are also water isotope and ocean carbon cycle time series. Note that variables with `_ym_` in the name will only be available for annual means.

## 5. Accessing this Data

To download the above files, you can use the `wget` command from Linux. To get a single file, simply type:

```
wget www.paleo.bris.ac.uk/ummodel/data/tcmfa3/climate/tcmfa3a.pdcljan.nc
```

or

```
wget www.paleo.bris.ac.uk/ummodel/data/tcmfa3/monthly/tcmfa3.precip\_mm\_srf.monthly.nc
```

You can obviously also put this into loops etc. For instance, to get all months of upper air data for `tcmfa3`, you could use:

```
for mon in jan feb mar apr may jun jul aug sep oct nov dec ; do
```

```
  wget www.paleo.bris.ac.uk/ummodel/data/tcmfa3/climate/tcmfa3a.pcccl\${mon}.nc
```

```
done
```

## Appendix 1.

This is a list of some of the climate variables we save. Not all simulations have saved all of these variables. It also does not include derived quantities such as biomes, and storm tracks etc., nor more unusual setups such as isotopes and ocean carbon cycle. The pc,pd,pf,pt files are all available on a monthly basis, but the pg file contains annual means only.

File type	Netcdf Variable Name	Number Levels	Type of Levels	Comments
pc	omega_mm_p	17	Pressure	
pc	QCL_mm_hyb	19	Hybrid	
pc	QCF_mm_hyb	19	Hybrid	
pc	u_mm_p	17	Pressure	Zonal (W-E) Wind in Atmosphere Interior
pc	v_mm_p	17	Pressure	Meridional (S-N) Wind in Atmosphere Interior
pc	uv_mm_p	17	Pressure	
pc	temp_mm_p_u	17	Pressure	
pc	Tu_mm_p	17	Pressure	
pc	Tv_mm_p	17	Pressure	
pc	TT_mm_p	17	Pressure	
pc	uu_mm_p	17	Pressure	
pc	vv_mm_p	17	Pressure	
pc	omega_mm_p_1	17	Pressure	
pc	Tomega_mm_p	17	Pressure	
pc	uomega_mm_p	17	Pressure	
pc	vomega_mm_p	17	Pressure	
pc	q_mm_p	17	Pressure	
pc	uq_mm_p	17	Pressure	
pc	vq_mm_p	17	Pressure	
pc	ht_mm_p	17	Pressure	
pc	temp_mm_p	17	Pressure	Temperature in Atmosphere Interior
pc	rh_mm_p	17	Pressure	
pc	htht_mm_p	17	Pressure	
pd	moistureQTFlux_mm_hyb	1		
pd	cldamount_mm_hyb	19	Hybrid	Cloud amount at each model level
pd	lowCloud_mm_ua	1		
pd	medCloud_mm_ua	1		
pd	highCloud_mm_ua	1		
pd	QCL_mm_hyb	1		
pd	QCF_mm_hyb	1		
pd	totCloud_mm_ua	1		
pd	totCloudranmax_mm_ua	1		

pd	Tw_mm_hyb	1		
pd	solar_mm_s3_srf	1		
pd	solar_mm_s3_srf_1	1		
pd	downSol_mm_TOA	1		
pd	upSol_mm_s3_TOA	1		
pd	clrskyUpSol_mm_s3_TOA	1		
pd	clrskyDownSol_mm_s3_srf	1		
pd	clrskyUpSol_mm_s3_srf	1		
pd	swhr_mm_hyb	19	Hybrid	
pd	csswhr_mm_s3_hyb	19	Hybrid	
pd	downSol_Seaice_mm_s3_srf	1		
pd	solar_mm_s3_trop	1		
pd	upSol_mm_s3_trop	1		
pd	longwave_mm_s3_srf	1		
pd	olr_mm_s3_TOA	1		
pd	csolr_mm_s3_TOA	1		
pd	ilr_mm_s3_srf	1		
pd	csilr_mm_s3_srf	1		
pd	lwyr_mm_s3_hyb	19	Hybrid	
pd	cslwyr_mm_s3_hyb	19	Hybrid	
pd	longwave_mm_s3_trop	1		
pd	ilr_mm_s3_trop	1		
pd	atmosCorr_mm_ua	1		
pd	botmelt_mm_srf	1		
pd	soilHeatFlux_mm_soil	1		
pd	CDrag_mm_srf	1		
pd	CH_mm_srf	1		
pd	windShear_mm_hyb	1		
pd	sh_mm_hyb	1		
pd	taux_mm_hyb	1		
pd	tauy_mm_hyb	1		
pd	moistureQTFlux_mm_hyb_1	1		
pd	wme_mm_srf	1		
pd	u_mm_10m	1		Surface (10m) zonal (W-E) wind
pd	v_mm_10m	1		Surface (10m) meridional (S-N) wind
pd	sh_mm_srf	1		
pd	evap_mm_srf	1		
pd	canopyEvap_mm_can	1		
pd	sublim_mm_srf	1		
pd	evapsea_mm_srf	1		
pd	lh_mm_srf	1		
pd	topmelt_mm_srf	1		
pd	temp_mm_ds0_1_5m	1		
pd	temp_mm_1_5m	1		Surface Air Temperature (in K)
pd	q_mm_1_5m	1		
pd	moistureFlux_mm_srf	1		



pd	rh_mm_1_5m	1		
pd	wind_mm_10m	1		
pd	dewT_mm_1_5m	1		
pd	transpiration_mm_srf	1		
pd	lsrain_mm_srf	1		
pd	cvrain_mm_srf	1		
pd	cvsnow_mm_srf	1		
pd	convclد_mm_hyb	19	Hybrid	
pd	convCldWater_mm_hyb	19	Hybrid	
pd	rain_mm_srf	1		
pd	snow_mm_srf	1		
pd	precip_mm_ds0_srf	1		
pd	precip_mm_srf	1		Total Precipitation (in kg/m2)
pd	snowmeltHflx_mm_srf	1		
pd	fastrunoff_mm_srf	1		
pd	slowrunoff_mm_srf	1		
pd	sm_mm_srf	1		
pd	canopyWater_mm_can	1		
pd	sm_mm_soil	4	Soil Levels	
pd	soiltemp_mm_soil	4	Soil Levels	
pd	SoilMoist_mm_soil	4	Soil Levels	
pd	frozenSoilMoist_mm_soil	4	Soil Levels	
pd	snowmelt_mm_srf	1		
pd	canopyThru_mm_can	1		
pd	srfRunoff_mm_srf	1		
pd	subsrfRunoff_mm_srf	1		
pd	ke_mm_ua	1		
pd	mountainTorque_mm_bl	1		
pd	p_mm_trop	1		
pd	temp_mm_trop	1		
pd	ht_mm_trop	1		
pd	p_mm_msl	1		Mean sea level pressure (in Pa)
pd	p_mm_srf	1		
pd	theta_mm_hyb	1		
pd	q_mm_hyb	1		
pd	convclد_mm_ua	1		
pd	CCCWaterPath_mm_ua	1		
pd	snowdepth_mm_srf	1		
pd	temp_mm_srf	1		
pd	blht_mm_bl	1		
pd	iceconc_mm_srf	1		Sea ice concentration (on atmosphere model grid)
pd	icedepth_mm_srf	1		
pt	AcLeafTurnPFT_snp_srf	5	Veg Surf Types	

pt	GBMVegCarb_srf	1		
pt	GBMLitCarb_srf	1		
pt	LAI_PFT_snp_srf	5	Veg Surf Types	
pt	LitCarbPFT_srf	5	Veg Surf Types	
pt	PhenLeafTurnPFT_srf	5	Veg Surf Types	
pt	VegCarbPFT_srf	5	Veg Surf Types	
pt	AcLeafTurnPFT_triff_snp_srf	5	Veg Surf Types	
pt	AcSoilResp_srf	1		
pt	AcWoodRespPFT_srf	5	Veg Surf Types	
pt	LAI_PFT_triff_snp_srf	5	Veg Surf Types	
pt	NPPtiles_srf	5	Veg Surf Types	
pt	canopyHeight_PFT_srf	5	Veg Surf Types	
pt	field1394_srf	1		
pt	fracPFTs_srf	9	All Surf Types	Fractional land types from TRIFFID
pt	soilCarbon_srf	1		
pt	BulkRich_mm_srf	8	Non-Ice Surf Types	
pt	GPP_PFT_mm_srf	5	Veg Surf Types	
pt	GPP_mm_srf	1		
pt	LAI_PFT_mm_srf	5	Veg Surf Types	
pt	NPP_PFT_mm_srf	5	Veg Surf Types	
pt	NPP_mm_srf	1		
pt	canopyCond_mm_srf	1		
pt	canopyEvap_T_mm_srf	8	Non-Ice Surf Types	
pt	canopyEvap_mm_can	1		
pt	canopyHeight_mm_srf	1		
pt	evapoTrans_mm_srf	8	Non-Ice Surf Types	
pt	fracPFTs_mm_srf	9	All Surf Types	
pt	fracPFTssnowadj_mm_srf	9	All Surf Types	
pt	leafTurnover_PFT_mm_srf	5	Veg Surf Types	

pt	plantResp_PFT_mm_srf	5	Veg Surf Types	
pt	plantResp_mm_srf	1		
pt	potEvapTiles_mm_srf	8	Non-Ice Surf Types	
pt	potEvap_mm_srf	1		
pt	roughnessLength_T_mm_srf	8	Non-Ice Surf Types	
pt	sensHflx_T_mm_srf	8	Non-Ice Surf Types	
pt	snowCover_mm_srf	1		
pt	snowtemp_mm_srf	1		
pt	soilCarbon_mm_srf	1		
pt	soilEvap_mm_srf	1		
pt	soilResp_mm_srf	1		
pt	srfRad_mm_srf	1		
pt	srfSublim_mm_srf	1		
pt	temp_mm_srf	8	Non-Ice Surf Types	
pt	waterCapac_T_mm_srf	8	Non-Ice Surf Types	
pt	waterContent_T_mm_srf	8	Non-Ice Surf Types	
rd	rd0_mm_srf	1		Number of Rainy Days (threshold 0.0 mm/day)
rd	rd1_mm_srf	1		Number of Rainy Days (threshold 0.1 mm/day)
rd	rd2_mm_srf	1		Number of Rainy Days (threshold 0.2 mm/day)
rd	rd3_mm_srf	1		Number of Rainy Days (threshold 0.4 mm/day)
rd	rd4_mm_srf	1		Number of Rainy Days (threshold 0.6 mm/day)
rd	rd5_mm_srf	1		Number of Rainy Days (threshold 0.8 mm/day)
rd	rd6_mm_srf	1		Number of Rainy Days (threshold 1.0 mm/day)
pf	W_mm_dpht	19	Ocean Half levels	Ocean Vertical motion
pf	HTN_mm_uo	1		
pf	carryheat_mm_uo	1		
pf	anomSeaiceHflux_mm_uo	1		
pf	srfSalFlux_mm_uo	1		
pf	insitu_T_mm_dpht	20	Ocean Full Levels	Ocean Temperatures
pf	ucurrTot_mm_dpht	20	Ocean Full Levels	Ocean Zonal (W-E) current

pf	vcurrTot_mm_dpht	20	Ocean Full Levels	Ocean Medidional (S-N) current
pf	uVelSeaice_mm_uo	1		
pf	vVelSeaice_mm_uo	1		
pf	HTNintoICE_mm_uo	1		
pf	temp_mm_uo	1		Sea Surface Temperature
pf	HTNICEwhenICY_mm_uo	1		
pf	snowdepthonseice_mm_uo	1		
pf	uStressIceOc_mm_uo	1		
pf	vStressIceOc_mm_uo	1		
pf	uCoriolis_mm_uo	1		
pf	vCoriolis_mm_uo	1		
pf	dSeaiceConcDt_mm_uo	1		
pf	dSeaiceDepthDt_mm_uo	1		
pf	dSeaiceSnowDepthDt_mm_uo	1		
pf	dSeaiceDepthDtdiff_mm_uo	1		
pf	dSeaiceConcDtttherm_mm_uo	1		
pf	dSeaiceDepthDtttherm_mm_uo	1		
pf	dSeaiceSnowDepthDtttherm_mm_uo	1		
pf	uStressIce_mm_uo	1		
pf	vStressIce_mm_uo	1		
pf	temp_mm_dpht	20	Ocean Full Levels	Ocean Potential Temperature
pf	salinity_mm_dpht	20	Ocean Full Levels	Ocean Salinity
pf	otracer14_mm_dpht	20	Ocean Full Levels	Age of Ocean Water
pf	streamFn_mm_uo	1		Ocean Horizontal Streamfunction
pf	mixLyrDpth_mm_uo	1		Mixed Layer Depth
pf	snowdepth_mm_uo	1		
pf	carryheatice_mm_uo	1		
pf	OcIceHflux_mm_uo	1		
pf	carrySalt_mm_uo	1		
pf	iceconc_mm_uo	1		Sea ice concentration on ocean model grid
pf	icedepth_mm_uo	1		
pf	TAUX_mm_uo	1		
pf	TAUY_mm_uo	1		
pf	WME_mm_uo	1		
pf	SOL_mm_uo	1		
pf	HTNpenhtflxocn_mm_uo	1		
pf	PLE_mm_uo	1		
pf	outflow_mm_uo	1		
pf	snowfall_mm_uo	1		
pf	sublim_mm_uo	1		
pf	anomSaltFlux_mm_uo	1		

pg	W_ym_dpth	19	Ocean Half Levels	Ocean Vertical motion
pg	srfSalFlux_ym_uo	1		
pg	GMvelU_ym_dpth	20	Ocean Full Levels	
pg	GMvelV_ym_dpth	20	Ocean Full Levels	
pg	GMvelW_ym_dpth	19	Ocean Half Levels	
pg	insitu_T_ym_dpth	20	Ocean Full Levels	Ocean Temperatures
pg	ucurrTot_ym_dpth	20	Ocean Full Levels	Ocean Zonal (W-E) current
pg	vcurrTot_ym_dpth	20	Ocean Full Levels	Ocean Medidional (S-N) current
pg	temp_ym_dpth	20	Ocean Full Levels	Ocean Potential Temperature
pg	salinity_ym_dpth	20	Ocean Full Levels	Ocean Salinity
pg	otracer14_ym_dpth	20	Ocean Full Levels	Age of Ocean Water
pg	streamFn_ym_uo	1		Ocean Horizontal Streamfunction
pg	mixLyrDpth_ym_uo	1		Mixed Layer Depth
pg	iceconc_ym_uo	1		
pg	icedepth_ym_uo	1		
pg	anomSaltFlux_ym_uo	1		

## Appendix 2. Folder structure

The base folder of the data base is `/home/bridge/swsvalde/ummodel/data` on the BRIDGE servers. Externally this is the same as [www.paleo.bris.ac.uk/ummodel/data](http://www.paleo.bris.ac.uk/ummodel/data) (Note that as a security feature, a web browser will not display the contents of this and subsequent folders. Accessing folders/files requires knowledge of the specific name of the file).

Within this folder every simulation has a separate folder (e.g. all data for simulation `texpc` is contained in: [www.paleo.bris.ac.uk/ummodel/data/texpc](http://www.paleo.bris.ac.uk/ummodel/data/texpc)).

For each simulation the folders are:

Folder	Contents
<code>texpc/biome</code>	Output for biome4
<code>texpc/climate</code>	Climatological means
<code>texpc/contents_list</code>	Contains data files with the list of available variables
<code>texpc/eofs</code>	Empirical Orthogonal Functions (rarely used)
<code>texpc/expt_archive</code>	Data for restarting simulation
<code>texpc/global_means</code>	Plain text global means
<code>texpc/inidata</code>	Boundary condition files (e.g. land sea mask etc.)
<code>texpc/lastyear</code>	Daily data from last year of run (rarely used).
<code>texpc/merid_atm</code>	Atmosphere Meridional Overturning (Hadley Cell)
<code>texpc/merid_ocn</code>	Ocean Meridional Overturning (AMOC etc)
<code>texpc/monthly</code>	Monthly Time series files
<code>texpc/ocean_data</code>	Ocean volume integral time series
<code>texpc/plots</code>	Old work folder for web pages
<code>texpc/processed_data</code>	Old work folder for web pages
<code>texpc/sed</code>	Large range of processed diagnostics
<code>texpc/snowacc</code>	Snow accumulation
<code>texpc/solar</code>	Solar energy fluxes
<code>texpc/standard_html</code>	Old web pages for simulations (not used)
<code>texpc/standard_html_BAS</code>	BAS badged old web pages for simulations (not used)
<code>texpc/standard_plots</code>	Old preprocessed images for web (not used)
<code>texpc/storms</code>	Mid-latitude storm diagnostics
<code>texpc/time_series</code>	Old time series data (not used)
<code>texpc/new_plots</code>	Work folder for web pages
<code>texpc/standard_new_html</code>	Web pages for simulations
<code>texpc/standard_new_plots</code>	Preprocessed images for web
<code>texpc/wetland</code>	Sheffield Dynamic Vegetation Model Output

For each simulation, the folder structure is identical but individual files may have different saved variables and some files may not be present. The two core folders are called `monthly` and `climate`. These contain the monthly time series of selected variables, and the climatological means respectively. Almost all files are stored as `netcdf`.

### Appendix 3. Files

Within the folder structure described in appendix 2, there are a large number of files. The naming convention is explained in section 4, but an example complete list is shown below.

Listing for 5-character simulation name (texpc).

```
texpc/biome/texpc_biome4out.nc
texpc/biome/texpc_biome4out_co2.nc
texpc/biome/texpc_biome4out_high.nc
texpc/biome/texpc_biome4out_high_co2.nc
texpc/biome/texpc_inputdata.nc
texpc/biome/texpc_inputdata_high.nc
texpc/climate/texpca.pcclann.nc
texpc/climate/texpca.pcclapr.nc
texpc/climate/texpca.pcclaug.nc
texpc/climate/texpca.pccldec.nc
texpc/climate/texpca.pccldjf.nc
texpc/climate/texpca.pcclfeb.nc
texpc/climate/texpca.pccljan.nc
texpc/climate/texpca.pccljja.nc
texpc/climate/texpca.pccljjs.nc
texpc/climate/texpca.pccljul.nc
texpc/climate/texpca.pccljun.nc
texpc/climate/texpca.pcclmam.nc
texpc/climate/texpca.pcclmar.nc
texpc/climate/texpca.pcclmay.nc
texpc/climate/texpca.pcclnov.nc
texpc/climate/texpca.pccloct.nc
texpc/climate/texpca.pcclsep.nc
texpc/climate/texpca.pccldson.nc
texpc/climate/texpca.pcsdann.nc
texpc/climate/texpca.pcsdapr.nc
texpc/climate/texpca.pcsdaug.nc
texpc/climate/texpca.pcsddec.nc
texpc/climate/texpca.pcsddjf.nc
texpc/climate/texpca.pcsdfeb.nc
texpc/climate/texpca.pcsdjan.nc
texpc/climate/texpca.pcsdjja.nc
texpc/climate/texpca.pcsdjjs.nc
texpc/climate/texpca.pcsdjul.nc
texpc/climate/texpca.pcsdjun.nc
texpc/climate/texpca.pcsdmam.nc
texpc/climate/texpca.pcsdmar.nc
texpc/climate/texpca.pcsdmay.nc
texpc/climate/texpca.pcsdnov.nc
texpc/climate/texpca.pcsdoct.nc
texpc/climate/texpca.pcsdsep.nc
texpc/climate/texpca.pcsdson.nc
texpc/climate/texpca.pdclann.nc
texpc/climate/texpca.pdclapr.nc
```

texpc/climate/texpca.pdclaug.nc  
texpc/climate/texpca.pdcldec.nc  
texpc/climate/texpca.pdcldjf.nc  
texpc/climate/texpca.pdclfeb.nc  
texpc/climate/texpca.pdcljan.nc  
texpc/climate/texpca.pdcljja.nc  
texpc/climate/texpca.pdcljjs.nc  
texpc/climate/texpca.pdcljul.nc  
texpc/climate/texpca.pdcljun.nc  
texpc/climate/texpca.pdclmam.nc  
texpc/climate/texpca.pdclmar.nc  
texpc/climate/texpca.pdclmay.nc  
texpc/climate/texpca.pdclnov.nc  
texpc/climate/texpca.pdcloct.nc  
texpc/climate/texpca.pdclsep.nc  
texpc/climate/texpca.pdclson.nc  
texpc/climate/texpca.pdsdann.nc  
texpc/climate/texpca.pdsdapr.nc  
texpc/climate/texpca.pdsdaug.nc  
texpc/climate/texpca.pdsddec.nc  
texpc/climate/texpca.pdsddjf.nc  
texpc/climate/texpca.pdsdfeb.nc  
texpc/climate/texpca.pdsdjan.nc  
texpc/climate/texpca.pdsdjja.nc  
texpc/climate/texpca.pdsdjjs.nc  
texpc/climate/texpca.pdsdjul.nc  
texpc/climate/texpca.pdsdjun.nc  
texpc/climate/texpca.pdsdmam.nc  
texpc/climate/texpca.pdsdmar.nc  
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texpc/climate/texpca.pdsdnov.nc  
texpc/climate/texpca.pdsdoct.nc  
texpc/climate/texpca.pdsdsep.nc  
texpc/climate/texpca.pdsdson.nc  
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texpc/climate/texpca.ptclapr.nc  
texpc/climate/texpca.ptclaug.nc  
texpc/climate/texpca.ptcldec.nc  
texpc/climate/texpca.ptcldjf.nc  
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texpc/climate/texpca.ptcljul.nc  
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texpc/climate/texpca.ptclmar.nc  
texpc/climate/texpca.ptclmay.nc  
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texpc/climate/texpca.ptcloct.nc  
texpc/climate/texpca.ptclsep.nc



texpc/climate/texpca.ptclson.nc  
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texpc/climate/texpca.ptsdapr.nc  
texpc/climate/texpca.ptsdaug.nc  
texpc/climate/texpca.ptsddec.nc  
texpc/climate/texpca.ptsdjfe.nc  
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texpc/climate/texpca.ptsdjan.nc  
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texpc/climate/texpca.ptsdmay.nc  
texpc/climate/texpca.ptsdnov.nc  
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texpc/climate/texpca.rdsdjan.nc  
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texpc/climate/texpca.rdsdjul.nc  
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texpc/climate/texpco.pfclaug.nc  
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texpc/global\_means/texpc.dat  
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texpc/inidata/texpc.qrparm.omask.nc  
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texpc/inidata/texpc\_lsm.names

texpc/inidata/texpc\_olsm.lines  
texpc/inidata/texpc\_olsm.names  
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texpc/monthly/texpc.fracPFTs\_mm\_srf\_04.monthly.nc  
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texpc/monthly/texpc.fracPFTs\_mm\_srf\_06.monthly.nc  
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texpc/monthly/texpc.icedepth\_mm\_srf.monthly.nc  
texpc/monthly/texpc.ilr\_mm\_s3\_srf.monthly.nc  
texpc/monthly/texpc.lh\_mm\_srf.monthly.nc  
texpc/monthly/texpc.longwave\_mm\_s3\_srf.monthly.nc  
texpc/monthly/texpc.merid\_Atlantic\_ym\_dpth.annual.nc  
texpc/monthly/texpc.merid\_Global\_ym\_dpth.annual.nc  
texpc/monthly/texpc.merid\_Indian\_ym\_dpth.annual.nc  
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texpc/monthly/texpc.mixLyrDpth\_mm\_uo.monthly.nc  
texpc/monthly/texpc.olr\_mm\_s3\_TOA.monthly.nc

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texpc/monthly/texpc.p\_mm\_srf.monthly.nc  
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texpc/monthly/texpc.salinity\_ym\_dpth\_5.annual.nc  
texpc/monthly/texpc.salinity\_ym\_dpth\_666.annual.nc  
texpc/monthly/texpc.sh\_mm\_hyb.monthly.nc  
texpc/monthly/texpc.sm\_mm\_soil.monthly.nc  
texpc/monthly/texpc.snowdepth\_mm\_srf.monthly.nc  
texpc/monthly/texpc.soilCarbon\_mm\_srf.monthly.nc  
texpc/monthly/texpc.soiltemp\_mm\_soil.monthly.nc  
texpc/monthly/texpc.solar\_mm\_s3\_srf.monthly.nc  
texpc/monthly/texpc.temp\_mm\_1\_5m.monthly.nc  
texpc/monthly/texpc.temp\_mm\_srf.monthly.nc  
texpc/monthly/texpc.temp\_mm\_uo.monthly.nc  
texpc/monthly/texpc.temp\_ym\_dpth\_2731.annual.nc  
texpc/monthly/texpc.temp\_ym\_dpth\_5.annual.nc  
texpc/monthly/texpc.temp\_ym\_dpth\_666.annual.nc  
texpc/monthly/texpc.totCloud\_mm\_ua.monthly.nc  
texpc/monthly/texpc.totalEvap\_mm\_srf.monthly.nc  
texpc/monthly/texpc.u\_mm\_10m.monthly.nc  
texpc/monthly/texpc.u\_mm\_p\_200.monthly.nc  
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texpc/monthly/texpc.ucurrTot\_mm\_dpth\_5.monthly.nc  
texpc/monthly/texpc.ucurrTot\_ym\_dpth\_2731.annual.nc  
texpc/monthly/texpc.ucurrTot\_ym\_dpth\_5.annual.nc  
texpc/monthly/texpc.ucurrTot\_ym\_dpth\_666.annual.nc  
texpc/monthly/texpc.upSol\_mm\_s3\_TOA.monthly.nc  
texpc/monthly/texpc.v\_mm\_10m.monthly.nc  
texpc/monthly/texpc.v\_mm\_p\_200.monthly.nc  
texpc/monthly/texpc.v\_mm\_p\_850.monthly.nc  
texpc/monthly/texpc.vcurrTot\_mm\_dpth\_5.monthly.nc  
texpc/monthly/texpc.vcurrTot\_ym\_dpth\_2731.annual.nc  
texpc/monthly/texpc.vcurrTot\_ym\_dpth\_5.annual.nc  
texpc/monthly/texpc.vcurrTot\_ym\_dpth\_666.annual.nc  
texpc/ocean\_data/texpc.SAtl\_InFreshWaterFlux.cl.dat  
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texpc/ocean\_data/texpc.SAtl\_NetFreshWaterFlux.cl.dat  
texpc/ocean\_data/texpc.SAtl\_NetFreshWaterFlux.dat  
texpc/ocean\_data/texpc.SAtl\_OutFreshWaterFlux.cl.dat  
texpc/ocean\_data/texpc.SAtl\_OutFreshWaterFlux.dat  
texpc/ocean\_data/texpc.salinity.dat  
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texpc/ocean\_data/texpc.salinity\_lower.dat.ym  
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texpc/ocean\_data/texpc.salinity\_upper.dat.ym  
texpc/ocean\_data/texpc.temp.dat  
texpc/ocean\_data/texpc.temp.dat.ym

texpc/ocean\_data/texpc.temp\_lower.dat  
texpc/ocean\_data/texpc.temp\_lower.dat.ym  
texpc/ocean\_data/texpc.temp\_upper.dat  
texpc/ocean\_data/texpc.temp\_upper.dat.ym  
texpc/sed/texpc\_fluxesann.dat  
texpc/sed/texpc\_sed.nc  
texpc/sed/texpc\_tempminmax.nc  
texpc/snowacc/texpc\_snowacc\_024.nc  
texpc/snowacc/texpc\_snowacc\_072.nc  
texpc/snowacc/texpc\_snowacc\_120.nc  
texpc/snowacc/texpc\_snowacc\_168.nc  
texpc/snowacc/texpc\_snowacc\_216.nc  
texpc/solar/texpc.solarclann.nc  
texpc/wetland/texpc\_bioflux.nc  
texpc/wetland/texpc\_bioflux\_constco2.nc  
texpc/wetland/texpc\_ch4.nc  
texpc/wetland/texpc\_ch4\_constco2.nc  
texpc/wetland/texpc\_lat\_flux\_totals.txt  
texpc/wetland/texpc\_lat\_flux\_totals\_constco2.txt  
texpc/wetland/texpc\_totals.txt  
texpc/wetland/texpc\_totals\_constco2.txt

Listing for 6-character simulation name (texpa1).

texpa1/biome/texpa1\_biome4out.nc  
texpa1/biome/texpa1\_biome4out\_alt.nc  
texpa1/biome/texpa1\_biome4out\_alt\_co2.nc  
texpa1/biome/texpa1\_biome4out\_alt\_high.nc  
texpa1/biome/texpa1\_biome4out\_alt\_high\_co2.nc  
texpa1/biome/texpa1\_biome4out\_co2.nc  
texpa1/biome/texpa1\_biome4out\_high.nc  
texpa1/biome/texpa1\_biome4out\_high\_co2.nc  
texpa1/biome/texpa1\_inputdata.nc  
texpa1/biome/texpa1\_inputdata\_alt.nc  
texpa1/biome/texpa1\_inputdata\_alt\_high.nc  
texpa1/biome/texpa1\_inputdata\_high.nc  
texpa1/climate/texpa1a.pcclann.nc  
texpa1/climate/texpa1a.pcclapr.nc  
texpa1/climate/texpa1a.pcclaug.nc  
texpa1/climate/texpa1a.pccldec.nc  
texpa1/climate/texpa1a.pccldjf.nc  
texpa1/climate/texpa1a.pcclfeb.nc  
texpa1/climate/texpa1a.pccljan.nc  
texpa1/climate/texpa1a.pccljja.nc  
texpa1/climate/texpa1a.pccljjs.nc  
texpa1/climate/texpa1a.pccljul.nc  
texpa1/climate/texpa1a.pccljun.nc  
texpa1/climate/texpa1a.pcclmam.nc  
texpa1/climate/texpa1a.pcclmar.nc  
texpa1/climate/texpa1a.pcclmay.nc  
texpa1/climate/texpa1a.pcclnov.nc

texpa1/climate/texpa1a.pccloct.nc  
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texpa1/climate/texpa1a.pcclson.nc  
texpa1/climate/texpa1a.pcsdann.nc  
texpa1/climate/texpa1a.pcsdapr.nc  
texpa1/climate/texpa1a.pcsdaug.nc  
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texpa1/climate/texpa1a.pcsdfeb.nc  
texpa1/climate/texpa1a.pcsdjan.nc  
texpa1/climate/texpa1a.pcsdjja.nc  
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texpa1/climate/texpa1a.pcsdjun.nc  
texpa1/climate/texpa1a.pcsdmam.nc  
texpa1/climate/texpa1a.pcsdmar.nc  
texpa1/climate/texpa1a.pcsdmay.nc  
texpa1/climate/texpa1a.pcsdnov.nc  
texpa1/climate/texpa1a.pcsdoct.nc  
texpa1/climate/texpa1a.pcsdsep.nc  
texpa1/climate/texpa1a.pcsdson.nc  
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