

atmmon xwalk.html

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html>
<head>
<meta http-equiv="Content-Type"
content="text/html; charset=iso-8859-1">
<meta name="GENERATOR"
content="Mozilla/4.05 [en] (WinNT; I) [Netscape]">
<title>CCSM Xwalk to CMIP Standard Output</title>
</head>
<body style="background-color: rgb(255, 255, 255);">
```

CCSM ATM crosswalk to the PCMDI IPCC Standard Output Requirements

```
<h4 style="color: rgb(0, 0, 0);">Initial draft: LB March 24 2004
<style ="color: rgb(0, 0, 0);"></style>Corrections: LB March 25 2004
<style ="color: rgb(255, 0, 0);"></style><span
style="color: rgb(255, 0, 0);">Additions: GS August 3 2004</span></h4>
```

Overview

The following tables were extracted from the PCMDI IPCC standard Output requirements document dated 20 July 2004. Each table a column listing the CCSM atmosphere model history variables needed to generate the corresponding PCMDI field.

Monthly mean and time-independent data

<caption> <i>Monthly Mean
Atmosphere + Land Surface 2-D
(latitude,
longitude) Data</i> <
/caption><tbody>

	CF Standard name	CAM name	CF name	CF units
1	air_pressure_at_sea_level	PSL	Pa	psl Pa
2	precipitation_flux	(PRECC+PRECL) *densityH ~2~0	m s⁻¹	pr kg m⁻² s⁻¹
3	air_temperature^a	TREFHT	K	tas K
6	surface_downward_eastward_stress	TAUX	N m⁻²	tauu Pa
7	surface_downward_northward_stress	TAUY	N m⁻²	tauv Pa
8	surface_snow_thickness	SNOWHLND SNOWHICE (Lv+Lf)*QFLX - Lf10-3	m	snd m
9	surface_upward_latent_heat_flux	(PRECC+PRECL)		hfis W m⁻²
10	surface_upward_sensible_heat_flux	SHFLX	W m⁻²	hfss W m⁻²
11	surface_downwelling_longwave_flux	FLDS= SRFRAD-FSNS	W m⁻²	rlds W m⁻²
12	surface_upwelling_longwave_flux	SRFRAD- FSNS-FLNS	W m⁻²	rlus W m⁻²
13	surface_downwelling_shortwave_flux	FSDS	W m⁻²	rsds W m⁻²
14	surface_upwelling_shortwave_flux	FSDS-FSNS	W m⁻²	rsus W m⁻²
15	surface_temperature	TS	K	ts K
16	surface_air_pressure	PS	Pa	ps Pa
17	snowfall_flux	(PRECSC+PRECSL)) *densityH20	m s⁻¹	prsn kg m⁻² s⁻¹
18	convective_precipitation_flux	PRECC	m s⁻¹	prc kg m⁻² s⁻¹
19	atmosphere_water_vapor_content	TMQ	kg m⁻²	prw kg m⁻²

26	eastward_wind^d	U(lowest)	m s⁻¹	uas	m s⁻¹
27	northward_wind^d	V(lowest)	m s⁻¹	vas	m s⁻¹
28	specific_humidity^d	QREFHT	kg kg⁻¹	huss	kg kg⁻¹
29	atmosphere_eastward_stress_due_to_gravity_wave_drag	TAUGWX		tauu	Pa
30	atmosphere_northward_stress_due_to_gravity_wave_drag			gwd	Pa
31	toa_incoming_shortwave_flux	SOLIN	W m⁻²	rsdt	W m⁻²
32	toa_outgoing_shortwave_flux	SOLIN-FSNTOA	W m⁻²	rsut	W m⁻²
33	toa_outgoing_longwave_flux	FLUT	W m⁻²	rlut	W m⁻²
34	net_downward_radiative_flux_at_top_of_atmosphere_model	FSNTOA-FLUT	W m⁻²	rtmt	W m⁻²
35	surface_downwelling_shortwave_flux_assuming_clear_sky	FSDSC	W m⁻²	rsdsc	W m⁻²
36	surface_upwelling_shortwave_flux_assuming_clear_sky	FSDSC-FSNSC	W m⁻²	rsusc	W m⁻²
37	surface_downwelling_longwave_flux_assuming_clear_sky	SRFRAD-FSNSC	W m⁻²	rdscs	W m⁻²
38	toa_outgoing_longwave_flux_assuming_clear_sky	FLUTC	W m⁻²	rlutcs	W m⁻²
39	toa_outgoing_shortwave_flux_assuming_clear_sky	SOLIN-FSNTOAC	W m⁻²	rsutcs	W m⁻²
40	cloud_area_fraction	CLDTOT	fraction	clt	percent
41	atmosphere_cloud_condensed_water_content	TGCLDLWP	g m⁻²	clwvi	kg m⁻²
42	atmosphere_cloud_ice_content	TGCLDIWP	g m⁻²	clivi	kg m⁻²

^aAlso known as "surface air temperature."
Distinguish from 3-D air temperature by specifying a size-one dimension of height with coordinate value 2 m, or by including the CF-convention "coordinates" attribute, containing the name of a scalar coordinate variable for height with the value of 2 m.
^bIn the upper 0.1 m only.
^cTotal for all soil layers.
^dNear-surface value.
Distinguish from 3-D distribution by specifying a size-one dimension of height with coordinate value 10 m (for near-surface wind) or 2 m (for near-surface humidity), or by including the CF-convention "coordinates" attribute, containing the name of a scalar coordinate variable for height with the value of 10 or 2 m.

<caption> <i>Time-independent Land Surface 2-D (latitude, longitude) Data</i> </caption><tbody>

	CF Standard name	CAM name	PCMDI name	Units
1	surface_altitude	PHIS/g	m⁻² s⁻²	orog m
2	land_area_fraction	LANDFRAC*100	fraction	sftlf percent
3	land_ice_area_fraction	-		sftgif percent
4	soil_moisture_content_at_field_capacity	-		kg m⁻² mrsofc<sup>/sup>

<caption> <i>Monthly Mean Atmosphere 3-D Data</i>^a</caption><tbody>

	CF Standard name	CAM name	PCMDI name	Units
1	cloud_area_fraction_in_atmosphere_layer	CLOUD	fraction	cl percent
2	air_temperature	T	K	ta K

3	eastward_wind	U	m s ⁻¹	ua	m s ⁻¹
4	northward_wind	V	m s ⁻¹	va	m s ⁻¹
5	specific_humidity	Q	kg kg ⁻¹	hus	kg kg ⁻¹
6	omega	OMEGA	Pa s ⁻¹	wap	Pa s ⁻¹
7	geopotential_height	Z3	m	zg	m
8	relative_humidity	RELHUM	percent	hur	percent
9	area_fraction_below_surface ^b	-		psbg	percent
10	mole_fraction_of_o3_in_air	O3	mol mol ⁻¹	tro3	1e-9 (i.e., ppbv)

Except for the variable cloud_area_fraction_in_atmosphere_layer, this data must be provided on pressure levels. The set of pressure levels must include at least the AMIP standard pressure levels (= NCEP reanalysis levels):
1000, 925, 850, 700, 600, 500, 400, 300, 250, 200, 150, 100, 70, 50, 30, 20, 10 hPa.
^b_Fraction of the time that a pressure surface lies below ground.

Daily mean and 3-hourly data

NOTE:
The following daily mean data may be provided for a smaller time period than the monthly means:

Daily Mean Atmosphere 2-D (latitude, longitude) Data

	CF Standard name	CAM name	CAM units	PCMDI name	Units
1	air_pressure_at_sea_level	PSL	Pa	psl	Pa
2	precipitation_flux	PRECC+PRECL) densityH2O	m s ⁻¹	pr	kg m ⁻² s ⁻¹
3	air_temperature ^a , ^b	TREFHTMN	K	tasmin	K
4	air_temperature ^a , ^c	TREFHTMX	K	tasmax	K
5	air_temperature ^a	TREFHT	K	tas	K
6	surface_upward_latent_heat_flux	(Lv+Lf)*QFLS - Lf10-3(PRECC+PRECL)	W m ⁻²	hfls	W m ⁻²
7	surface_upward_sensible_heat_flux	SHFLX	W m ⁻²	hfss	W m ⁻²
8	surface_downwelling_longwave_flux	SRFRAD-FSNS	W m ⁻²	rlds	W m ⁻²
9	surface_upwelling_longwave_flux	SRFRAD- FSNS- FLNS	W m ⁻²	rlus	W m ⁻²
10	surface_downwelling_shortwave_flux	FSDS	W m ⁻²	rsds	W m ⁻²
11	surface_upwelling_shortwave_flux	FSDS-FSNS	W m ⁻²	rsus	W m ⁻²
12	eastward_wind ^d	U lowest	W m ⁻²	uas	m s ⁻¹
13	northward_wind ^d	V lowest	W m ⁻²	vas	m s ⁻¹

Also known as "surface air temperature."
Distinguish from 3-D air temperature by specifying a size-one dimension of height with coordinate value 2 m, or by including the CF-convention "coordinates" attribute, containing the name of a scalar coordinate variable for height with the value of 2 m.
Daily minimum value. Designate by a cell_methods attribute specifying "time: minimum within days," where "time" is the name of the time dimension.
Daily maximum value. Designate by a cell_methods attribute specifying "time: maximum within days," where "time" is the name of the time dimension.
Near-surface value. Distinguish from 3-D distribution by specifying a size-one dimension of height with coordinate value 10 m, or by including the CF-convention "coordinates" attribute, containing the name of a scalar coordinate variable for height with the value of 10 m.

Daily Mean Atmosphere 3-D Data

	CF Standard name	CAM name	CAM units	PCMDI name	Units
1	air_temperature	T	K	ta	K
2	eastward_wind	U	m s ⁻¹ ua		m s ⁻¹
3	northward_wind	V	m s ⁻¹ va		m s ⁻¹
4	specific_humidity	Q	m s ⁻¹ hus		kg kg ⁻¹

This data must be provided on pressure levels.
The set of pressure levels must include at least the following subset of AMIP standard pressure levels:
1000, 925, 850, 700, 600, 500, 400, 300, 200 hPa.
NOTE:
The following 3-hourly data may be provided for a smaller time period than the daily means but must extend for at least 1 year.
3-hourly precipitation should be an average; other 3-hourly data should be instantaneous "snapshots"

3-hourly 2-D (latitude, longitude) Data
(at 0, 3, 6, 9, 12, 15, 18, 21 Z):

	CF Standard name	CAM name	CAM units	PCMDI name	Units
1	air_pressure_at_sea_level	PSL	Pa	psl	Pa
2	precipitation_flux	(PRECC+PRECL)*densityH20	m s ⁻¹	pr	kg m ⁻² s ⁻¹
3	air_temperature	TREFHT (Lv+Lf)*QFLS	K	tas	K
4	surface_upward_latent_heat_flux	Lf10-3 (PRECC+PRECL)	W m ⁻²	hf1s	W m ⁻²
5	surface_upward_sensible_heat_flux	SHFLX	W m ⁻²	hfss	W m ⁻²
6	surface_downwelling_longwave_flux	SRFRAD-FSNS	W m ⁻²	rlds	W m ⁻²
7	surface_upwelling_longwave_flux	SRFRAD-FSNS-FLNS	W m ⁻²	rlus	W m ⁻²
8	surface_downwelling_shortwave_flux	FSDS	W m ⁻²	rsds	W m ⁻²
9	surface_upwelling_shortwave_flux	FSDS-FSNS	W m ⁻²	rsus	W m ⁻²

^aAlso known as "surface air temperature."
Distinguish from 3-D air temperature by specifying a size-one dimension
of
height with coordinate value 2 m,
or by including the CF-convention
"coordinates" attribute, containing the name of a scalar
coordinate variable for height with the value of 2 m.

</body>
</html>