WRF variables – daily and monthly RCCDP files

This table identifies and describes the variables contained in the daily files processed from the raw WRF three-hourly output. The same variables are in the monthly files processed from the daily files, with two additions (***bold-italic***).

Variable in **bold** are not stored in the daily or monthly files but are computed, as needed, in software.

dimensions	Name	Dimensions
	time	t
	south_north	s_n
	west_east	w_e
	pres_lev	p
	soil_layers	s

	Variable	Description	Units	Dimensions	MapMaker	Verify	Download	TimeSeries
time, location	TIME	YYYYMMDD or YYYYMM	day or month	(t)				
	PRES_LEV	Pressure level	hPa	(p)				
	DZS	Thicknesses of soil layers	m	(s)				
	XLAT	Latitude, south is negative	degree_north	(t, s_n, w_e)				
	XLONG	Longitude, west is negative	degree_east	(t, s_n, w_e)				
surface parameters	**Variable**	**Description**	**Units**	**Dimensions**				
	PSFC	Surface pressure	hPa	(t, s_n, w_e)	✓	✓	✓	
	PMSL	Pressure at mean sea level	hPa	(t, s_n, w_e)	✓	✓	✓	
	T2	Temperature at 2m	K	(t, s_n, w_e)	✓	✓	✓	
	T2_MIN	Daily minimum temperature at 2m	K	(t, s_n, w_e)	✓		✓	
	T2_MAX	Daily maximum temperature at 2m	K	(t, s_n, w_e)	✓		✓	
	Q2	Water vapor mixing ratio at 2m	kg kg^{-1}	(t, s_n, w_e)	✓		✓	
	U10	X-wind at 10m	m s^{-1}	(t, s_n, w_e)	✓		✓	
	V10	Y-wind at 10m	m s^{-1}	(t, s_n, w_e)	✓		✓	
	PRCP	Daily total precipitation	mm	(t, s_n, w_e)	✓	✓	✓	
	SNOW	Snow water equivalent	kg m^{-2}	(t, s_n, w_e)	✓		✓	
	RAINC	Daily total convective precipitation	mm	(t, s_n, w_e)				
	RAINNC	Daily total non-convective precipitation	mm	(t, s_n, w_e)				
	RAINSH	Daily total shallow convective precipitation	mm	(t, s_n, w_e)				
	SNOWNC	Daily total snow and ice	mm	(t, s_n, w_e)				
	GRAUPELNC	Daily total graupel	mm	(t, s_n, w_e)				
	HAILNC	Daily total hail	mm	(t, s_n, w_e)				
	SNOWH	Physical snow depth	m	(t, s_n, w_e)				
	CANWAT	Canopy water	kg m^{-2}	(t, s_n, w_e)				
	SFROFF	Daily total surface runoff	mm	(t, s_n, w_e)				
	UDROFF	Daily total underground runoff	mm	(t, s_n, w_e)				
	SST	Sea surface temperature	K	(t, s_n, w_e)				
	TSK	Surface skin temperature	K	(t, s_n, w_e)	✓		✓	
	RH2	Relative humidity at 2m	%	(t, s_n, w_e)	✓		✓	
	WSPD10	Wind speed at 10m	m s^{-1}	(t, s_n, w_e)	✓	✓	✓	
	WDIR10	Wind direction at 10m	degree	(t, s_n, w_e)			✓	
	SNOW15	Mid-month snow water equivalent	kg m^{-2}	(t, s_n, w_e)	✓			

	Variable	Description	Units	Dimensions				
atmospheric parameters	T	Temperature	K	(t, p, s_n, w_e)	✓		✓	
	Z	Geopotential height	m	(t, p, s_n, w_e)	✓		✓	
	Q	Water vapor mixing ratio	kg kg^{-1}	(t, p, s_n, w_e)	✓		✓	
	U	X-wind component	m s^{-1}	(t, p, s_n, w_e)	✓		✓	
	V	Y-wind component	m s^{-1}	(t, p, s_n, w_e)	✓		✓	
	W	Z-wind component	m s^{-1}	(t, p, s_n, w_e)	✓		✓	
	QC	Cloud water mixing ratio	kg kg^{-1}	(t, p, s_n, w_e)				
	QR	Rain water mixing ratio	kg kg^{-1}	(t, p, s_n, w_e)				
	QI	Ice mixing ratio	kg kg^{-1}	(t, p, s_n, w_e)				
	QS	Snow mixing ratio	kg kg^{-1}	(t, p, s_n, w_e)				
	CLD	Cloud fraction		(t, p, s_n, w_e)				
	RH	Relative humidity	%	(t, p, s_n, w_e)	✓		✓	
	WSPD	Wind speed	m s^{-1}	(t, p, s_n, w_e)	✓		✓	
	WDIR	Wind direction	degree	(t, p, s_n, w_e)			✓	
land-surface parameters	**Variable**	**Description**	**Units**	**Dimensions**				
	LU_INDEX	Land use category		(t, s_n, w_e)	✓			
	LANDMASK	Land mask (1 for land, 0 for water)		(t, s_n, w_e)				
	IVGTYP	Dominant vegetation category		(t, s_n, w_e)	✓			
	ISLTYP	Dominant soil category		(t, s_n, w_e)	✓			
	VEGFRA	Vegetation fraction		(t, s_n, w_e)	✓		✓	
	LAI	Leaf area index	m^2 m^{-2}	(t, s_n, w_e)	✓			
	HGT	Terrain height	m	(t, s_n, w_e)	✓		✓	
	ALBEDO	Albedo		(t, s_n, w_e)	✓		✓	
	ALBBCK	Background albedo		(t, s_n, w_e)	✓		✓	
	EMISS	Surface emissivity		(t, s_n, w_e)	✓		✓	
	XLAND	Land mask (1 for land, 2 for water)		(t, s_n, w_e)				
flux parameters	**Variable**	**Description**	**Units**	**Dimensions**				
	SWDOWN	Downward shortwave flux at ground surface	W m^{-2}	(t, s_n, w_e)	✓		✓	
	GLW	Downward longwave flux at ground surface	W m^{-2}	(t, s_n, w_e)	✓		✓	
	OLR	TOA outgoing longwave	W m^{-2}	(t, s_n, w_e)	✓		✓	
	GRDFLX	Ground heat flux	W m^{-2}	(t, s_n, w_e)	✓		✓	
	HFX	Upward heat flux at the surface	W m^{-2}	(t, s_n, w_e)	✓		✓	
	QFX	Upward moisture flux at the surface	kg m^{-2} s^{-1}	(t, s_n, w_e)	✓		✓	
	LH	Latent heat flux at the surface	W m^{-2}	(t, s_n, w_e)	✓		✓	
	SNOPCX	Snow phase change heat flux	W m^{-2}	(t, s_n, w_e)				
soil parameters	**Variable**	**Description**	**Units**	**Dimensions**				
	TSLB	Soil temperature	K	(t, s, s_n, w_e)	✓		✓	
	SMOIS	Soil moisture	m^3 m^{-3}	(t, s, s_n, w_e)	✓		✓	
	SH2O	Soil liquid water	m^3 m^{-3}	(t, s, s_n, w_e)				
	SMCREL	Relative soil moisture		(t, s, s_n, w_e)				
	SMOIS15	Mid-month soil moisture	m^3 m^{-3}	(t, s, s_n, w_e)	✓			