

CEOP Surface Meteorological and Radiation Dataset Format Definition

Description

This 30-Minute CEOP dataset contains the surface meteorological and radiation parameters reported by each CSE/Reference Site/Station Identifier combination at each Date/Time. The CEOP Surface Meteorological and Radiation Dataset format contains **8 metadata parameters** and **38 data parameters and flags**. The metadata parameters describe the station location and time at which the data were collected. The time of observation is reported both in Coordinated Universal Time (UTC) nominal and UTC actual time. The UTC actual time is the time of the actual observation. The minutes portion of the UTC nominal time is always 00 or 30. If the UTC actual time minutes are less than 15 or greater than or equal to 45, then the UTC nominal time minutes would be 00, else the UTC nominal minutes would be 30. **The time of observation should be from 00:00 to 23:30 UTC. No times of 24:00 UTC should be reported.** Equations are provided in the Notes sections for each derived parameter. All parameters and flags are space separated giving **305 characters** in each line (not including the final return character ending each line). Completely missing records should be included. The final CEOP Surface Meteorological and Radiation Dataset output file(s) should follow the [CEOP Reference Site Data Set File Naming Conventions](#), and data records should be sorted by UTC Nominal and Actual Date/Time and then by Latitude and Longitude. The table below details the space separated data parameters and associated flags in each record. Continuous meteorological parameters will be averaged over the 30-minutes prior to the reported observation. The flag values are assigned by the Reference Site, according to the [CEOP-specified data flags](#).

Sample Record

The following is a sample record of the CEOP Surface Meteorological and Radiation Data. Unlike this example, there are no carriage returns in the data. Thirty minutes worth of data are presented in each record. See the table below for an exact format specification.

```
2001/07/01 01:00 2001/07/01 01:00 LBA      Pantanal      Pantanal      -19.56339  -57.01494 -999.99 1003.30 U
 25.62 U  16.54 U  57.22 U  11.75 U  2.98 U  38.82 U  -1.87 U  -2.32 U  0.00 U -999.99 M  -2.40 U
 -1.26 U  -999.99 M  -999.99 M  -27.10 U  -999.99 M  -0.52 U  -3.22 U
```

Detailed Format Description

Parameter	C Format	Missing Value	Final Units/Equations/Notes
UTC Nominal Date/Time	16 chars	N/A	yyyy/mm/dd HH:MM, where MM is 00 or 30, only
UTC Actual Date/Time	16 chars	N/A	yyyy/mm/dd HH:MM
CSE Identifier	10 chars	N/A	Fill name with underscores, not spaces.
Reference Site Identifier	15 chars	N/A	Fill name with underscores, not spaces.
Station Identifier	15 chars	N/A	Fill name with underscores, not spaces.

Latitude	f10.5	-99.99999	decimal degrees. South is negative.
Longitude	f11.5	-999.99999	decimal degrees. West is negative.
Elevation	f7.2	-999.99	meters
Station Pressure	f7.2	-999.99	hPa (mb).
Station Pressure Flag	1 char	M	See Flag values .
Air Temperature	f7.2	-999.99	Celsius.
Air Temperature Flag	1 char	M	See Flag values .
Dew Point Temperature	f7.2	-999.99	Celsius. See Equations
Dew Point Temperature Flag	1 char	M	See Flag values .
Relative Humidity	f7.2	-999.99	percent. See Equations
Relative Humidity Flag	1 char	M	See Flag values .
Specific Humidity	f7.2	-999.99	g/kg. See Equations
Specific Humidity Flag	1 char	M	See Flag values .
Wind Speed	f7.2	-999.99	m/s. See Equations
Wind Speed Flag	1 char	M	See Flag values .
Wind Direction	f7.2	-999.99	degrees. See Equations
Wind Direction Flag	1 char	M	See Flag values .
U Wind Component	f7.2	-999.99	m/s. See Equations
U Wind Component Flag	1 char	M	See Flag values .
V Wind Component	f7.2	-999.99	m/s. See Equations
V Wind Component Flag	1 char	M	See Flag values .
Precipitation	f7.2	-999.99	millimeters. Incremental precipitation over the previous 30 minutes.
Precipitation Flag	1 char	M	See Flag values .
Snow Depth	f7.2	-999.99	centimeters.
Snow Depth Flag	1 char	M	See Flag values .
Incoming Shortwave	f8.2	-999.99	W/m ² .
Incoming Shortwave Flag	1 char	M	See Flag values .
Outgoing Shortwave	f8.2	-999.99	W/m ²
Outgoing Shortwave Flag	1 char	M	See Flag values .
Incoming Longwave	f8.2	-999.99	W/m ² .
Incoming Longwave Flag	1 char	M	See Flag values .
Outgoing Longwave	f8.2	-999.99	W/m ² .
Outgoing Longwave Flag	1 char	M	See Flag values .
Net Radiation	f8.2	-999.99	W/m ² . See Equations
Net Radiation Flag	1 char	M	See Flag values .
Skin Temperature	f8.2	-999.99	Celsius.
Skin Temperature Flag	1 char	M	See Flag values .
Incoming PAR	f8.2	-999.99	μmol/m ² /s.

Incoming PAR Flag	1 char	M	See Flag values .
Outgoing PAR	f8.2	-999.99	$\mu\text{mol}/\text{m}^2/\text{s}$.
Outgoing PAR Flag	1 char	M	See Flag values .