Data types access

15 July 2022 10:55

Weather Station (SPL) - .csv

Data obtained currently through manual upload (can send to email from dedicated data computer)

Data Name Simplified	Units	Data Name	Additional Explanation
Battery Voltage	V	BattV_Avg	Can be used to explain discrepancies
Machine Temperature?	C	Ptemp_C_Avg	
Air Temperature	C	AirTC_Avg	
Relative Humidity	%	RH	
Solar irradiance? (W)	W/m^2	SlrW_Avg	
Solar irradiance? (MJ)	MJ/m^2	SlrMJ_Tot	
Wind Speed	m/s	WS_ms_S_WVT	
Wind Direction	Degrees	WindDirD1_WVT	
Rain	mm	Rain_mm_Tot	
Pressure	mbar	BP_mbar_Avg	

RECORD', 'BattV_Avg', 'PTemp_C_Avg', 'AirTC_Avg', 'RH', 'SlrW_Avg',
'SlrMJ_Tot', 'WS_ms_S_WVT', 'WindDir_D1_WVT', 'Rain_mm_Tot',
'BP_mbar_Avg'

Los Gatos GGA (SPL) - .csv?

Data obtained currently through USB stick transfer

Data Name	Units
CO2 Concentration	PPM
CH4 Concentration	PPM
H2O Concentration	PPM

Leckel Sequential Sampler (SPL) - .(unknown)

Presumably data obtained currently through USB stick transfer?

Data Type	Units
Particulate matter *Presumably* PM10 and PM2.5?	*Presumably* µg/m^3

Ozone Analyser (SPL) - .(unknown)

Presumably data obtained currently through USB stick transfer?

Data Type	Units
O3	PPB

DEFRA Data (UoL Campus) - .Rdata, can be converted to .csv

Data obtained through DEFRA AURN API
Notebook below gives example of how to do this:
https://gist.github.com/psychemedia/ad30077359ab1f19fbfcace5236c55c2
Read with pyreadr.read_r(file)

Data Name	Units	Used in AQI?
O3	µg/m^3	(8hr mean)
NO	µg/m^3	
NO2	µg/m^3	(1hr mean)
NOXasNO2	µg/m^3	
PM10	µg/m^3	(24hr mean)
PM2.5	µg/m^3	(24hr mean)
WD	Degrees	
WS	m/s?	
Temp	C	

DataPoint - N/A (accessed through the API and using timestep.variable)

https://www.metoffice.gov.uk/services/data/datapoint/api-reference

Example of notebooks utilising this can be found below:
https://github.com/EJEP/datapoint-python

Data Name	Units
Dew point	K
Feels like temp	C

Important/Useful Links

Conversion between PPB to µg/m^3 and PPM to mg/m^3

DEFRA AURN Data Downloader Github

T_max + T_min
Dewpoint temperature is K
Acknowledge uncertainties but don't display it

Timeseries of temperature, wet bulb (?) temperature for extreme heat
Get the formatting correct, put a title, units etc on

Think about public facing timeseries this week

Wednesday morning meeting

Humidity	%
Precipitation	%
Pressure	None?
Pressure tendency	None?
Temperature	C
UV	Index?
Visibility	Description (visibility.value)
Weather	Description (weather.text)
Wind direction	Compass direction
Wind gust	mph
Wind speed	mph

ECMWF - .grib (/.nc?)

Loads of potential data types, notable higher resolution (0.08°/9km) examples listed below:

Data Name	Units
Wind components	M/s
Temperature	C
Total precipitation	m
Surface pressure	Pa
Specific humidity	Kg/kg
Relative humidity	%

Copernicus CDS - .grib/.nc

Insane amount of data, but low res for our particular area (0.25°/27km resolution)
https://cds.climate.copernicus.eu/cdsapp#!/search?type=dataset
Data used mainly for this project came from "ERA5 hourly data on single levels from 19xx to present"
Make sure not to select dates that have not occurred yet otherwise download will fail
Can also be obtained using direct download from website, or API in Python

Data Type Group
Temperature and pressure
Wind
Mean rates
Radiation and heat
Clouds
Lakes
Evaporation and runoff
Precipitation and rain
Snow
Soil
Vertical integrals
Vegetation
Ocean Waves

Copernicus ADS - .grib/.nc

Same idea as CDS but for atmospheric data (e.g. air quality and atmospheric chemistry)
https://ads.atmosphere.copernicus.eu/cdsapp#!/search?type=dataset