My Latex automated Report

Generated from my notebook.ipynb

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1 Initialisation

1.1 import packages

The required packages for this Notebook are:

Package	Version
ipypublish	0.10.10
prettytable	0.7.2
numpy	1.16.5
pandas	0.25.1
matplotlib	3.1.1
ipython	7.12.0

1.2 definition of functions

1.2.1 function tp display beatiful tables

```
def format_for_print(df,n=0,wide=False):
    df2=df.round(n).reset_index()
    col=[w.replace("_", " ") for w in list(df2.columns)]
    return pt.PrettyTable(df2.values,col,wide_table=wide)
```

2 import data

The data for this example are generated with the demo version of meteonorm 7

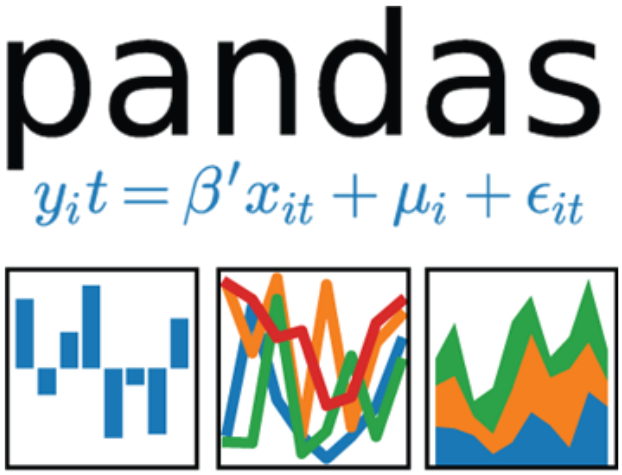
the data will be dealing with the weather data of the berlin tempelhof weatherstation on monthly basis.

Symbol	Unit	Description
G Gh	kWh/m²	Global solar irradiance monthly averages
G Dh	kWh/m²	Diffuse solar irradiance monthly averages
Ta	°C	Air temperature
Td	°C	Dew point
FF	m/s	wind speed

```
(['Symbol', 'Unit', 'Description'],
 [['G Gh', 'kWh/m²', 'Global solar irradiance monthly averages'],
  ['G Dh', 'kWh/m²', 'Diffuse solar irradiance monthly averages'],
  ['Ta', '°C', 'Air temperature'],
  ['Td', '°C', 'Dew point'],
  ['FF', 'm/s', 'wind speed']])
```

3 Text and Images

3.1 markdown image and text



here above image is a markdown image and the present text is a markdown text

3.2 Code images and text

```
 The here above images are generated from the concatenation of 2 images using
nb_setup.images_hconcat and this text was written using the print statement
```

4 Example of a table

4.1 table small

`Monthly weather data from Berlin`

`units`

index	month	G Gh	G Dh	Ta	Td	FF
0	nan	kWh/m²	kWh/m²	°C	°C	m/s

`data`

index	G Gh	G Dh	Ta	Td	FF
1.0	20.0	12.0	1.0	-2.0	4.0
2.0	36.0	20.0	2.0	-1.0	4.0
3.0	76.0	43.0	4.0	0.0	5.0
4.0	124.0	67.0	10.0	3.0	3.0
5.0	154.0	78.0	15.0	8.0	5.0
6.0	164.0	85.0	17.0	11.0	4.0
7.0	160.0	81.0	19.0	13.0	4.0
8.0	136.0	68.0	19.0	13.0	4.0
9.0	94.0	47.0	14.0	10.0	4.0
10.0	55.0	32.0	10.0	7.0	4.0
11.0	24.0	16.0	5.0	3.0	4.0
12.0	15.0	10.0	1.0	-1.0	6.0

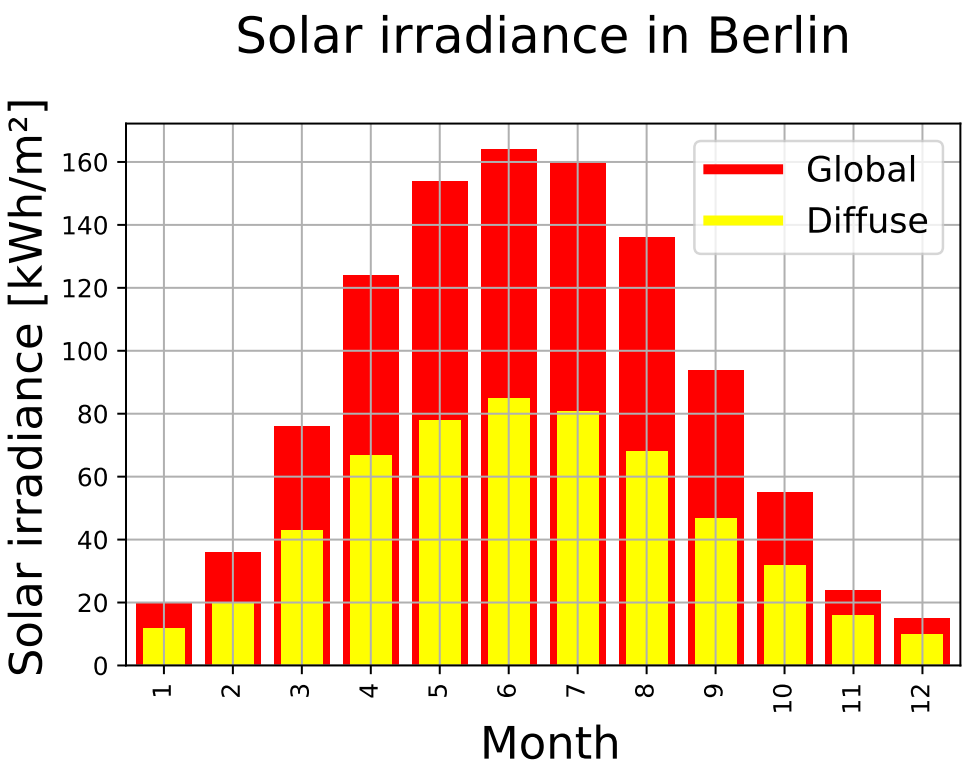
4.2 Table wide

This is an example of wide table with random float rounded to 3 position after comma

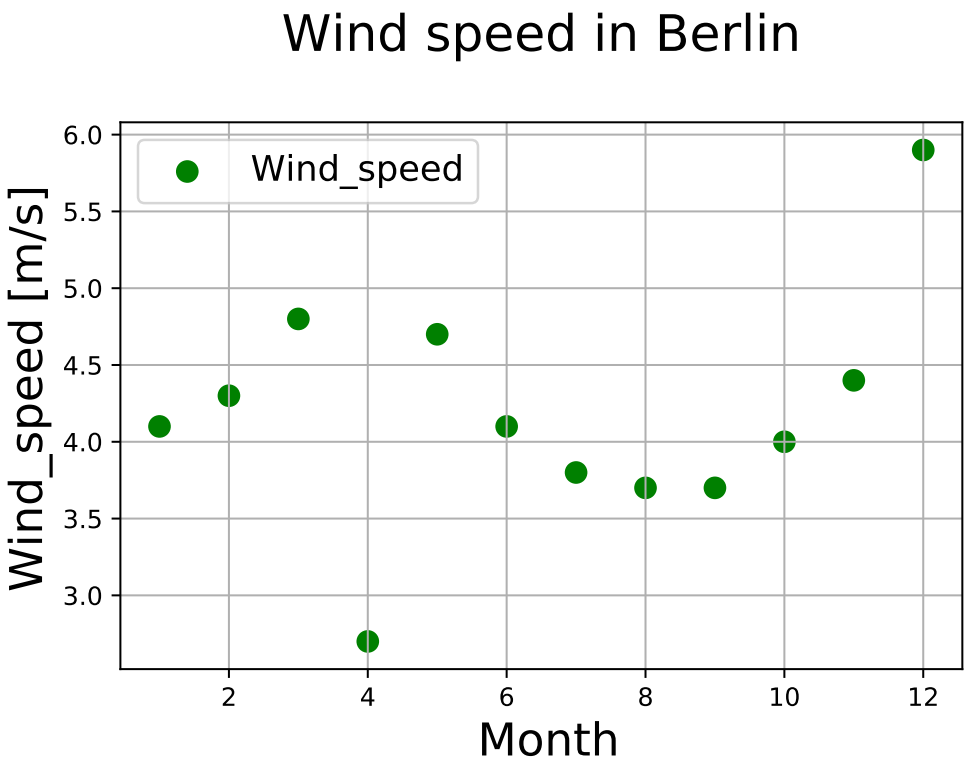
index	col 1	col 2	col 3	col 4	col 5	col 6	col 7	col 8	col 9	col 10	col 11	col 12	col 13	col 14	col 15
0.0	203.296	170.353	120.157	69.562	175.545	83.606	42.985	15.006	201.066	244.873	205.922	236.361	23.049	157.099	103.137
1.0	107.713	54.042	86.814	24.314	24.726	110.548	77.4	229.568	17.266	244.378	90.072	20.769	114.308	214.715	146.588
2.0	239.27	212.6	183.042	239.396	211.63	208.054	41.616	122.705	82.545	87.526	67.349	160.098	85.924	20.963	182.954
3.0	122.43	28.443	207.225	166.124	124.056	99.523	60.607	113.076	178.929	139.558	110.456	182.563	139.969	239.076	210.876
4.0	164.397	3.281	208.881	101.49	185.898	136.717	181.302	70.342	59.093	101.207	95.574	17.56	18.208	37.493	186.145
5.0	236.33	232.673	42.856	169.306	16.767	147.67	146.935	194.675	11.01	195.95	141.447	27.843	179.796	7.291	45.787
6.0	56.715	189.396	184.271	59.158	149.959	245.124	111.463	155.38	134.087	3.994	32.424	248.415	153.74	205.65	219.714
7.0	191.875	82.788	240.251	143.926	129.835	133.587	100.97	241.174	168.388	25.068	97.679	241.481	171.997	190.412	198.979
8.0	135.594	242.375	128.774	245.487	140.37	163.317	223.338	61.157	197.576	162.683	60.22	41.592	103.603	53.371	93.509
9.0	147.287	134.721	108.253	35.658	71.804	1.591	221.89	31.861	86.124	103.211	160.752	59.993	185.295	252.617	239.529
10.0	107.99	242.826	20.87	251.699	239.98	53.651	63.281	96.372	25.601	222.378	127.271	236.955	195.604	201.073	50.68
11.0	66.843	193.688	77.929	156.808	116.903	215.925	47.699	67.468	119.391	230.679	19.317	104.118	143.069	177.011	96.542
12.0	103.571	51.331	96.66	90.633	241.807	47.074	190.508	219.786	228.043	96.151	187.646	233.202	19.263	227.613	215.424
13.0	101.645	31.607	51.963	92.539	238.774	70.382	209.095	91.714	49.849	100.635	177.559	61.67	196.796	77.412	34.366
14.0	30.906	154.445	20.109	92.019	72.787	6.324	245.944	156.275	198.169	52.48	228.02	214.756	106.027	113.523	215.148
15.0	250.627	51.754	53.844	76.019	185.036	216.172	58.179	210.186	222.274	175.591	153.068	30.0	70.486	35.551	47.623
16.0	213.321	104.582	18.562	67.508	200.546	143.43	201.902	184.092	76.982	135.874	224.323	63.053	174.118	141.251	206.455
17.0	29.389	93.519	211.335	60.47	30.274	212.46	196.486	173.071	77.239	98.726	4.193	198.201	208.69	228.378	49.473
18.0	195.497	101.95	249.769	200.754	83.965	239.988	39.146	16.22	32.833	2.431	231.399	234.421	192.944	166.454	143.415
19.0	158.16	170.841	119.892	33.599	24.321	91.204	64.33	121.132	98.159	161.71	206.886	142.903	246.62	11.874	252.001

5 Example of chart

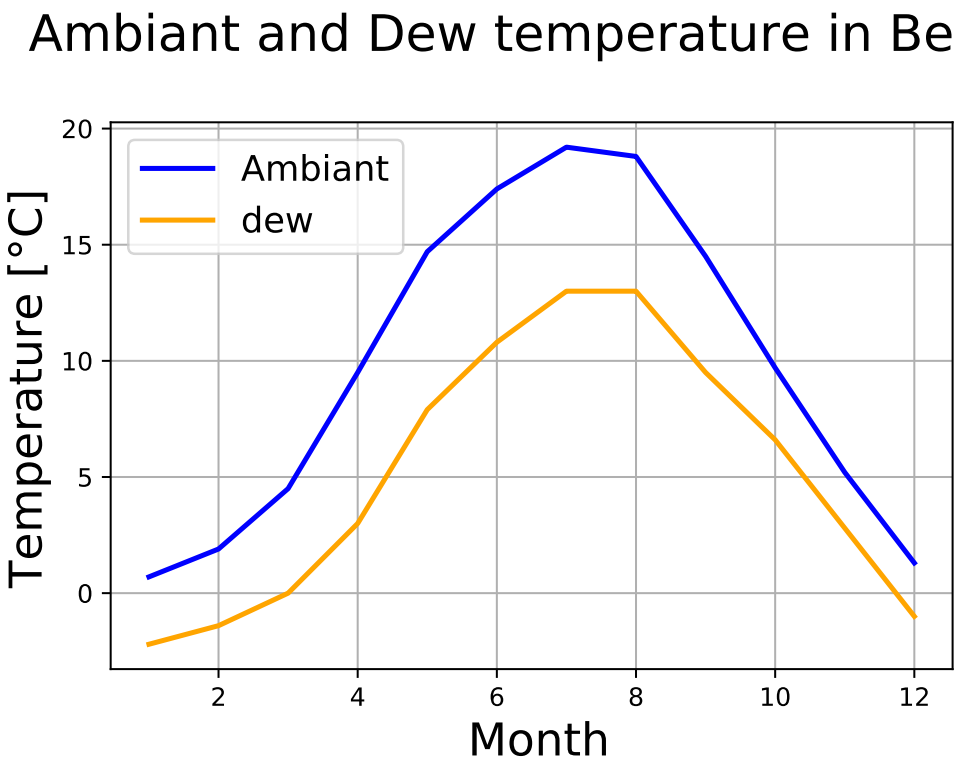
5.1 chart bar



5.2 chart scatter



5.3 chart line



6 Example of matematic formulas

example 1:

$$y = ax + b$$

with:

- y : Ordonate
- x : Abscissa
- a : Slope
- b : Initial value

example 2:

$$\sum_{i=1}^{\infty} i = \frac{n(n+1)}{2}$$

example 3:

$$\int_{0}^{\infty} \sqrt{x} e^{-x} dx = \frac{1}{2}\sqrt{\pi}$$

7 Generation of the template

```
Overwriting my_template.tplx
```