My Latex automated Report

Generated from my notebook.ipynb

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March 10, 2020

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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

Example 1: pretty Dataframe Tables

```
def pretty_df(df,n=0,wide=False,label="",caption=""):
    """
    For more Information Check PrettyTable.py
    """
    df2=df.round(n).reset_index()
    col=[w.replace("_", " ") for w in list(df2.columns)]
    return pt.PrettyTable(df2.values,col,wide_table=wide,label=label,caption=label)
```

1.2.2 another function

2 import data

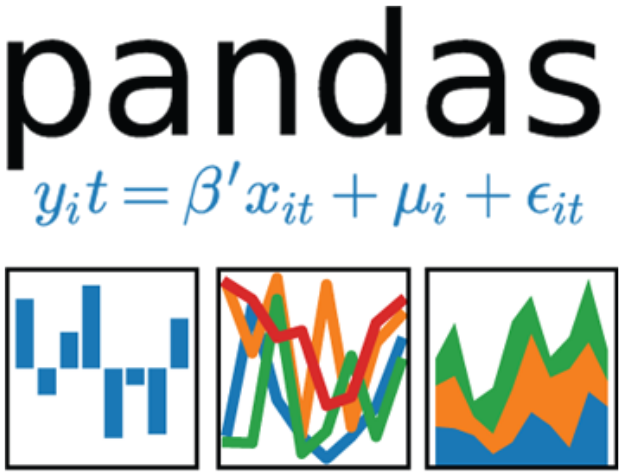
The data for this example are generated with the demo version of meteonorm 7

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

3 Text and Images

3.1 markdown image and text



3.2 Code images and text

The here above images are generated from the concatenation of 2 images, using `nb_setup.images_hconcat`

4 Example of a table

4.1 table small

Example of Small tables showing monthly weather data for berlin

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

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

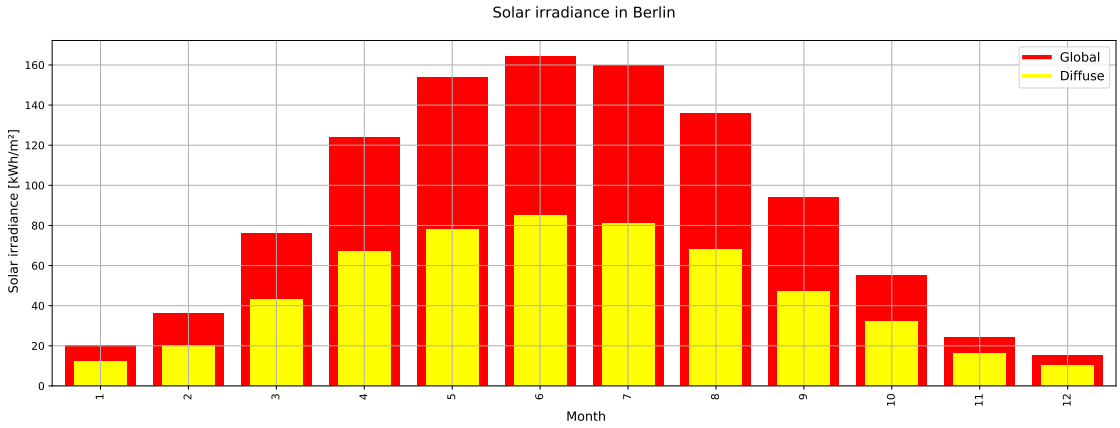
4.2 Table wide

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

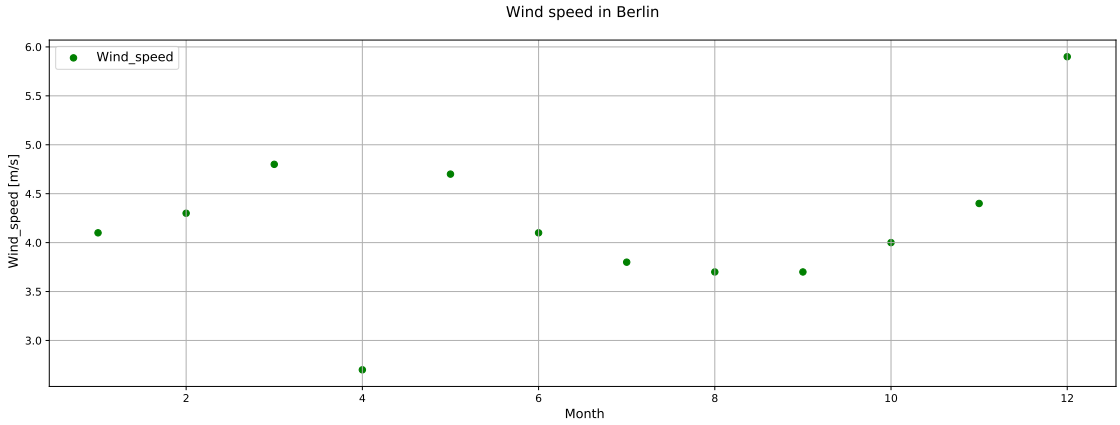
index	col 1	col 2	col 3	col 4	col 5	col 6	col 7	col 8	col 9	col 10	col 11	col 12	col 13	col 14	col 15
0.0	230.444	62.35	197.185	184.313	173.595	130.71	113.572	233.588	132.818	97.423	115.043	132.588	213.695	38.473	110.718
1.0	189.544	142.766	0.308	202.585	104.341	241.612	1.847	144.621	241.364	203.59	77.689	96.156	148.142	201.276	123.074
2.0	43.72	4.872	0.166	156.022	216.298	143.56	31.356	53.417	204.26	170.187	219.033	20.381	78.555	47.248	230.434
3.0	195.915	170.217	114.283	36.637	154.34	151.9	171.471	61.446	246.002	67.504	95.018	30.908	231.641	119.973	145.323
4.0	78.325	43.622	152.885	74.105	26.3	87.511	232.614	228.857	3.231	34.16	41.818	166.326	25.45	215.587	173.405
5.0	4.62	7.898	23.541	139.075	234.678	165.279	252.727	122.929	136.762	218.64	13.097	63.153	99.503	157.545	28.776
6.0	209.598	172.202	206.949	2.023	161.285	223.654	191.922	83.19	50.079	52.005	103.686	143.864	241.768	242.295	153.638
7.0	123.112	207.667	6.159	240.728	28.22	88.235	111.537	131.751	76.735	32.169	146.822	63.357	69.938	233.724	230.581
8.0	220.692	54.473	170.882	146.09	65.554	192.102	185.095	85.639	144.181	92.052	237.428	3.125	229.336	83.9	103.828
9.0	165.656	183.309	82.014	128.319	64.746	29.767	15.131	87.747	177.75	127.802	92.187	8.419	84.966	4.658	235.889
10.0	158.631	95.271	118.631	229.152	53.138	49.478	71.658	243.129	4.13	0.272	242.489	234.455	114.649	209.675	78.64
11.0	44.612	218.109	216.008	57.754	148.133	109.854	21.427	65.814	40.481	93.905	143.046	119.528	127.853	211.648	195.139
12.0	135.403	226.557	67.764	110.766	125.31	120.708	51.94	218.751	231.915	176.97	159.63	13.897	96.262	220.46	111.569
13.0	235.286	169.393	8.079	232.814	112.32	225.926	118.537	157.157	16.699	38.065	237.804	205.875	106.88	57.361	246.953
14.0	78.652	4.764	134.15	116.411	6.191	187.517	171.29	42.999	117.949	210.34	236.343	32.906	18.269	224.763	215.604
15.0	252.523	188.059	95.07	156.397	223.085	51.882	203.466	158.4	36.311	44.433	210.09	177.186	115.038	4.131	214.1
16.0	237.942	114.052	171.716	37.672	43.959	103.175	212.037	144.297	184.546	222.443	163.521	157.491	170.187	204.155	140.66
17.0	1.673	160.819	211.775	54.178	80.393	189.386	88.524	76.109	140.961	161.237	230.719	27.44	118.152	75.828	144.258
18.0	69.205	127.785	84.425	190.695	154.2	159.335	147.339	233.296	73.958	239.752	197.94	60.717	8.324	138.077	239.592
19.0	90.858	139.765	44.13	248.777	70.709	86.917	45.427	188.18	155.854	60.595	20.16	195.33	25.002	221.088	110.734

5 Example of chart

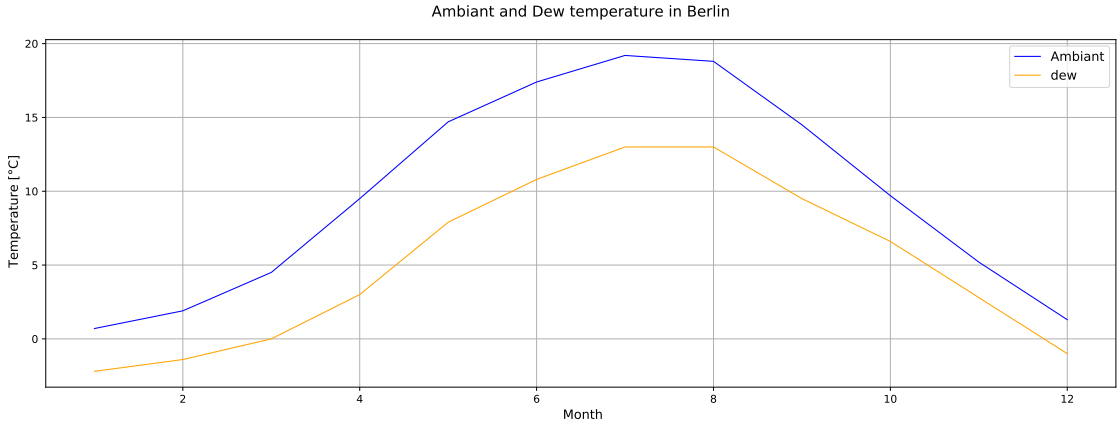
5.1 chart bar



5.2 chart scatter



5.3 chart line



6 Example of matematic formulas

example 1: Linear function

$$y = ax + b \tag{1}$$

with:

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

example 2: Sum Gaussian Integer

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

example 3: Gamma three half

$$\Gamma\left(\frac{3}{2}\right) = \int_0^{\infty} x^{\frac{3}{2}-1} e^{-x} dx = \int_0^{\infty} \sqrt{x} e^{-x} dx = \frac{1}{2}\sqrt{\pi} \tag{3}$$

7 Referencing

7.1 Images

Referencing Images:

- The image : 4 Is a plot of type scatter using matplotlib
- The image : 5 Caption and label will be edited in Cell Metadata with:

7.2 Tables

The table 1 represent the content of the file requirements.txt generated with `pipreqs`

7.3 Equations

Referencing equations:

- The equation 1 represents Linear equation or first order Polynome
- The equation 2 represents the sum of Gaussian Integers
- The equation 3 represents a specific gamma function, namely: $\Gamma\left(\frac{3}{2}\right)$

8 Generation of the template

```
Overwriting my_template.tplx
```