Entrée [113]:

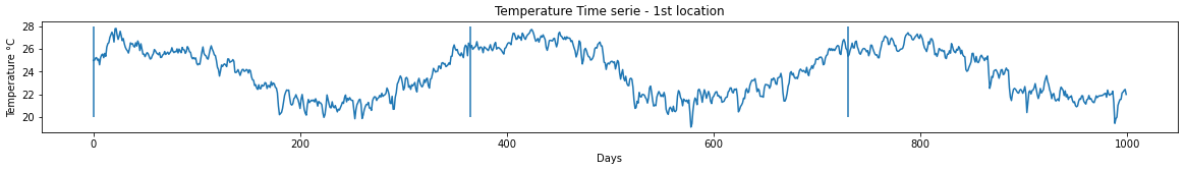
```
import pandas as pd
import numpy as np
#Reunion Island (1st location)
df=pd.read_csv('temperature_dataset.csv')
```

Entrée [114]:

```
import matplotlib.pyplot as plt
plt.figure(figsize=[20,2])
plt.title('Temperature Time serie - 1st location')
plt.xlabel('Days')
plt.ylabel('Temperature °C')
T=df['T2M']
plt.plot(np.arange(0,1000,1),T[0:1000])
plt.vlines(0,20,28)
plt.vlines(365,20,28)
plt.vlines(365*2,20,28)
```

Out[114]:

```
<matplotlib.collections.LineCollection at 0x1f8a51fbfc8>
```



Entrée [115]:

```
import datetime
import numpy as np
import scipy as sp
import scipy.fftpack
import pandas as pd
import matplotlib.pyplot as plt
%matplotlib inline
```

Entrée [124]:

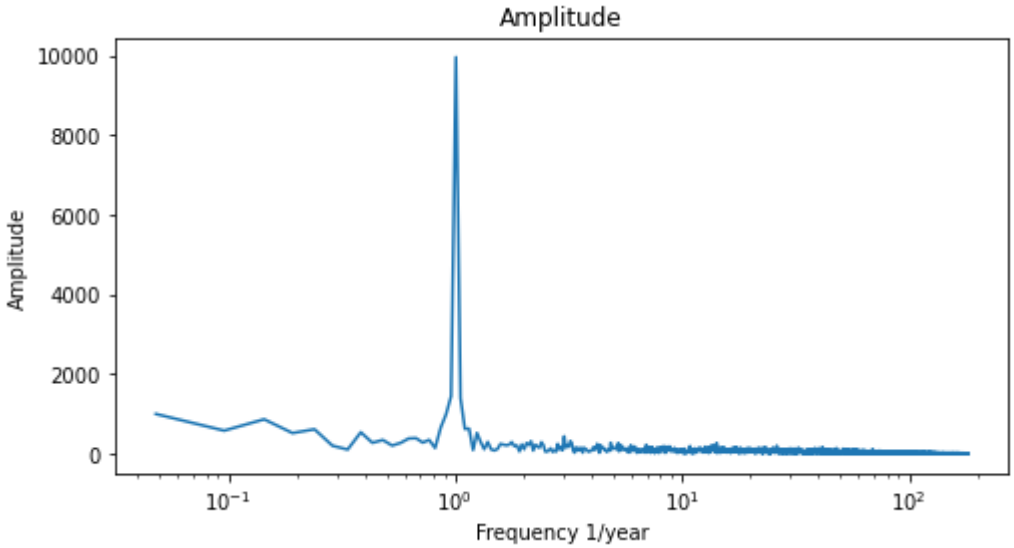
```
T=df['T2M']
T = T.values
N = len(T)
T_fft = sp.fftpack.fft(T)
T_A = np.abs(T_fft)
fftfreq = sp.fftpack.fftfreq(N, 1/365)
```

Entrée [125]:

```
# https://scipy-lectures.org/intro/scipy.html#fast-fourier-transforms-scipy-fftpack
```

Entrée [126]:

```
i = fftfreq > 0
plt.figure(figsize=[8, 4])
plt.plot(fftfreq[i], T_A[i])
plt.title('Amplitude')
plt.xlabel('Frequency 1/year')
plt.ylabel('Amplitude')
plt.xscale('log')
```



Entrée [127]:

```
maxi=np.max(T_A[i])
```

Entrée [128]:

```
for i in enumerate(i) :
    if (T_A[i]==maxi):
        print(i)
```

```
(21, True)

C:\Users\aline\anaconda3\lib\site-packages\ipykernel_launcher.py:2: Deprecat
ionWarning: The truth value of an empty array is ambiguous. Returning False,
but in future this will result in an error. Use `array.size > 0` to check th
at an array is not empty.
```

Entrée [129]:

```
fftfreq[21]
```

Out[129]:

```
1.0072273324572931
```

```
Which unit for y-axis ?
```

Entrée [ ]:

```
1
```