Explore Weather Trends

first i get my data from the data base schema in udacity work space using SQL queries

i wrote a query to get global data temp and local (cairo) to compare them

the query for retrive global data from global_data table is

select * from global_data;

to get local data i need to filter data by country and city level from city_data table

SELECT * FROM city_data WHERE country = 'Egypt' and city = 'Cairo' ;

In [1]:
```
# importing packages
import pandas as pd
import matplotlib.pyplot as plt
%matplotlib inline
import numpy as np
import seaborn as sns
sns.set() # set seaborn as default because sea born plots more fansy than matplot
```

In [2]:
```
#impoting our data
df1 = pd.read_csv('Global.csv')
df2= pd.read_csv('Cairo.csv')
```

In [3]:
```
# make copy to keep the original data
global_df = df1.copy()
egypt_df=df2.copy()
```

In [4]:
```
global_df.head()
```

Out[4]:

	year	avg_temp
0	1750	8.72
1	1751	7.98
2	1752	5.78
3	1753	8.39
4	1754	8.47

In [5]:
```
egypt_df.head()
```

Out[5]:

	year	city	country	avg_temp
0	1808	Cairo	Egypt	17.11
1	1809	Cairo	Egypt	19.87
2	1810	Cairo	Egypt	19.93
3	1811	Cairo	Egypt	20.00
4	1812	Cairo	Egypt	19.93

In [6]:
```
#checking for nulls
global_df.isnull().sum()
```

Out[6]:
```
year        0
avg_temp    0
dtype: int64
```

In [7]:
```
egypt_df.isnull().sum()
```

Out[7]:
```
year        0
city        0
country     0
avg_temp    0
dtype: int64
```

In [8]:
```
# creating new col for moving average for 7 days
global_df['moving_avg']=global_df.avg_temp.rolling(7).mean()
```

In [9]:
```
pd.set_option('display.max_rows', None) # this code help be to see all rows
global_df.moving_avg
```

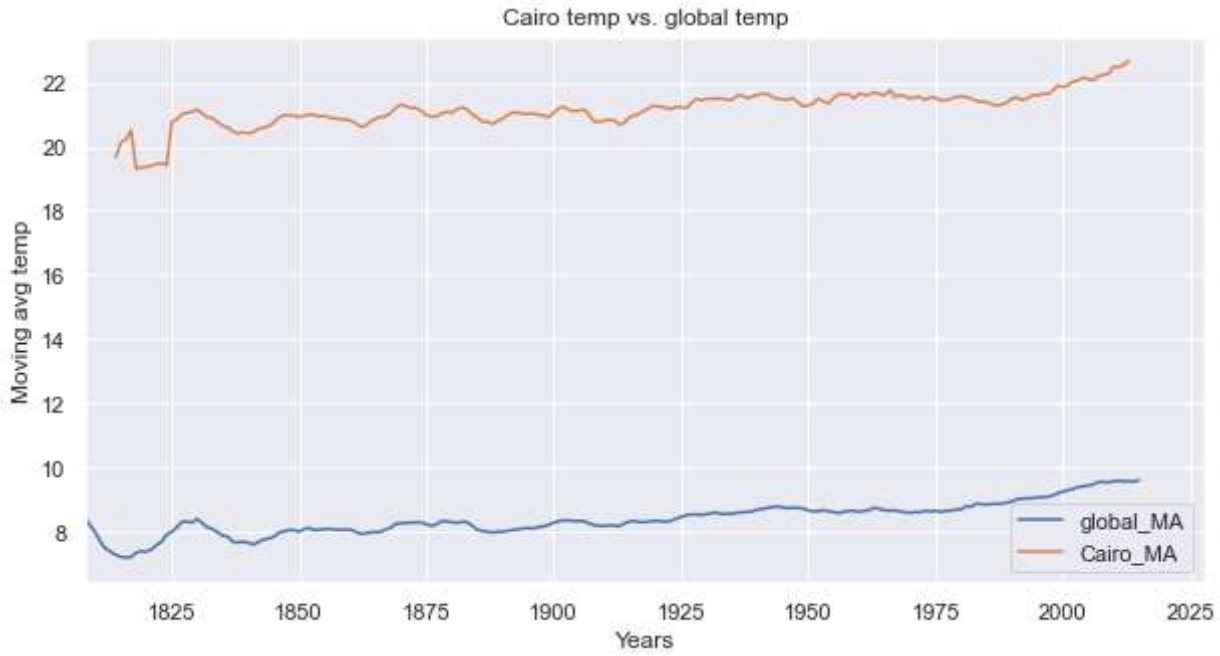
Out[9]:
```
0           NaN
1           NaN
2           NaN
3           NaN
4           NaN
5           NaN
6      8.078571
7      8.121429
8      7.944286
9      8.260000
10     8.088571
11     8.131429
12     8.167143
13     7.974286
14     7.885714
15     8.101429
16     8.161429
17     8.308571
18     8.024286
```

In [10]:
```
egypt_df['moving_avg']=egypt_df.avg_temp.rolling(7).mean()
```

In [11]:
```
egypt_df.moving_avg
```

Out[11]:
```
0            NaN
1            NaN
2            NaN
3            NaN
4            NaN
5            NaN
6      19.682857
7      20.138571
8      20.230000
9      20.508571
10     19.308571
11     19.362857
12     19.372857
13     19.401429
14     19.461429
15     19.490000
16     19.427143
17     20.770000
18     20.860000
```

In [19]:
```
plt.figure(figsize=(10,5))
plt.plot(global_df.year,global_df.moving_avg,label ="global_MA")
plt.plot(egypt_df.year,egypt_df.moving_avg,label ="Cairo_MA")
plt.title('Cairo temp vs. global temp')
plt.xlabel('Years')
plt.ylabel('Moving avg temp')
plt.xlim(egypt_df.year.min())
plt.legend()
plt.show()
```



my observations:

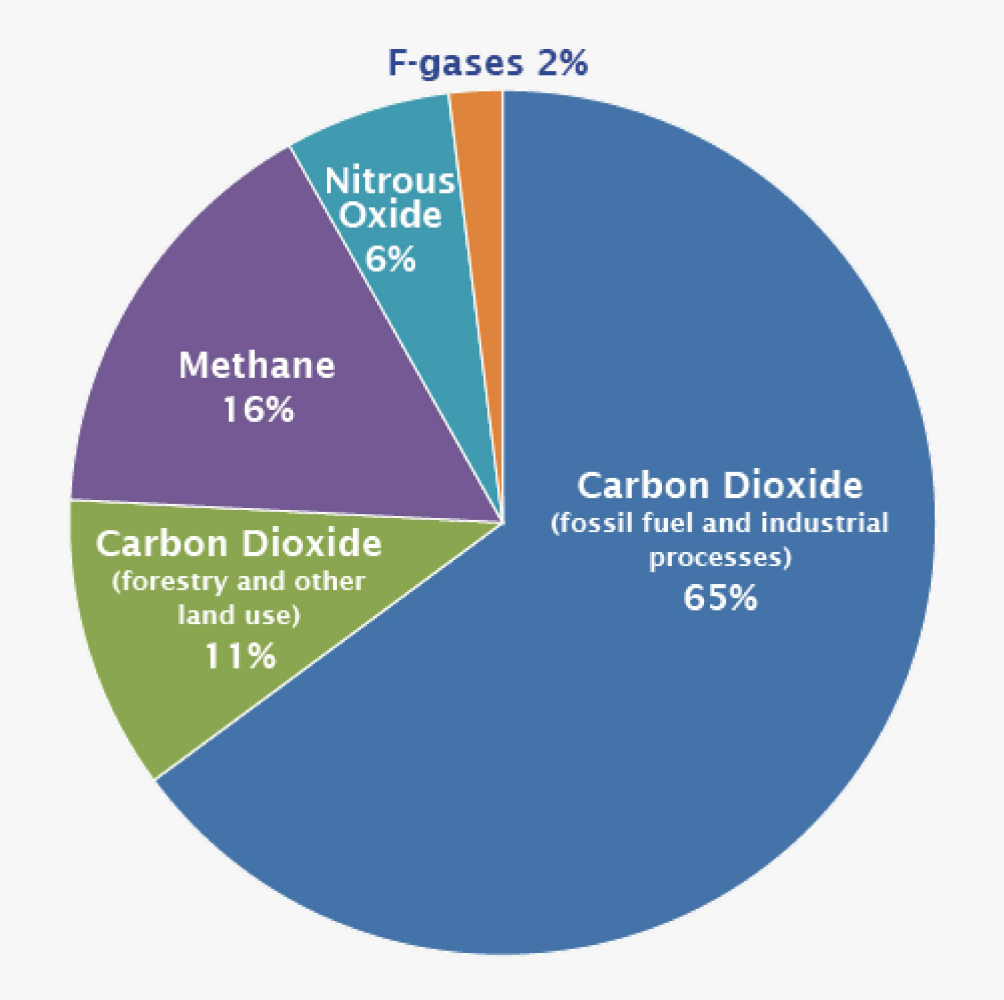
1- both global and local average temperature increasing every year.

2- the temperature in Cairo is warmer than the global temperature.

3- since 1950 the temperature is increasing more faster in both global and local

4- earth getting warmer every year and the increasing rate in temperature being faster we have a problem in global warming, this problem Threatening our species and I want to go deeper and see the causes of this problem.

After making research about the Causes of global warming i found this result :



at the end we need to more researches to found ways to stop this increasing in temp to save our planet

In [ ]: