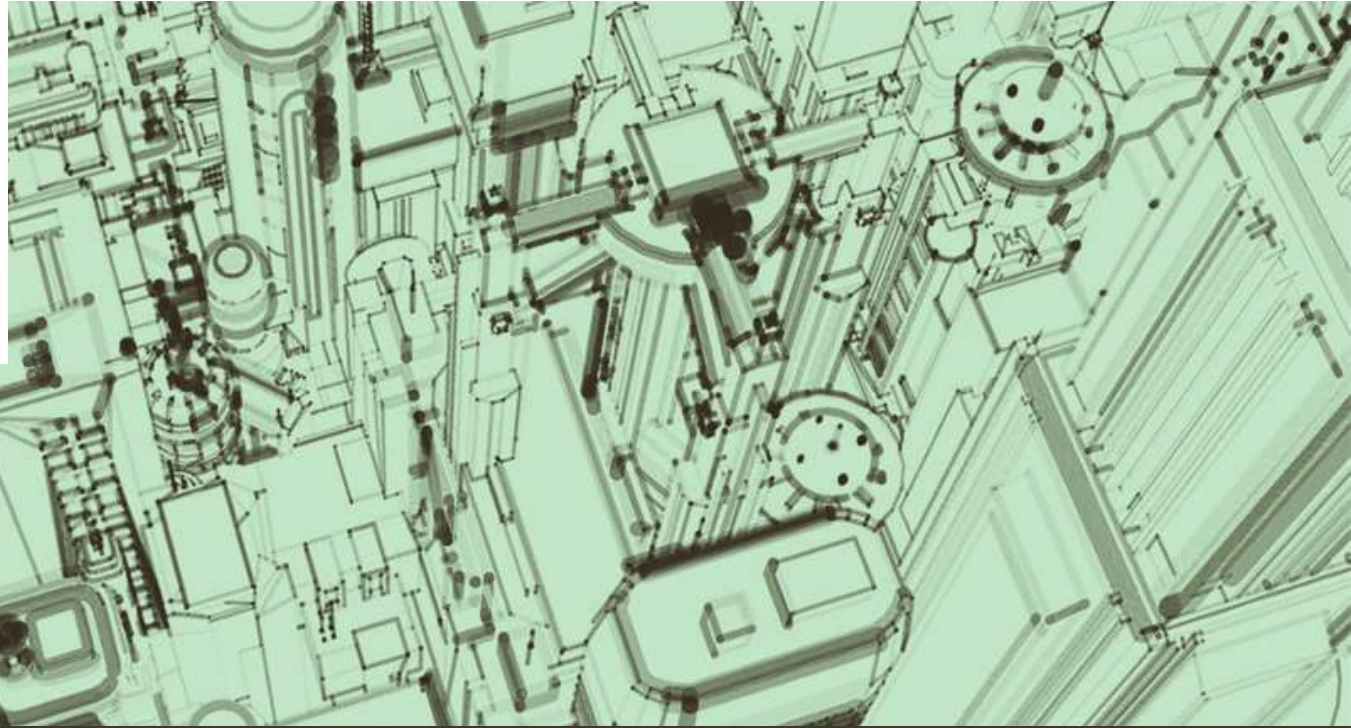




FACULTÉ DES  
SCIENCES

*Software development course (HMMA238)*

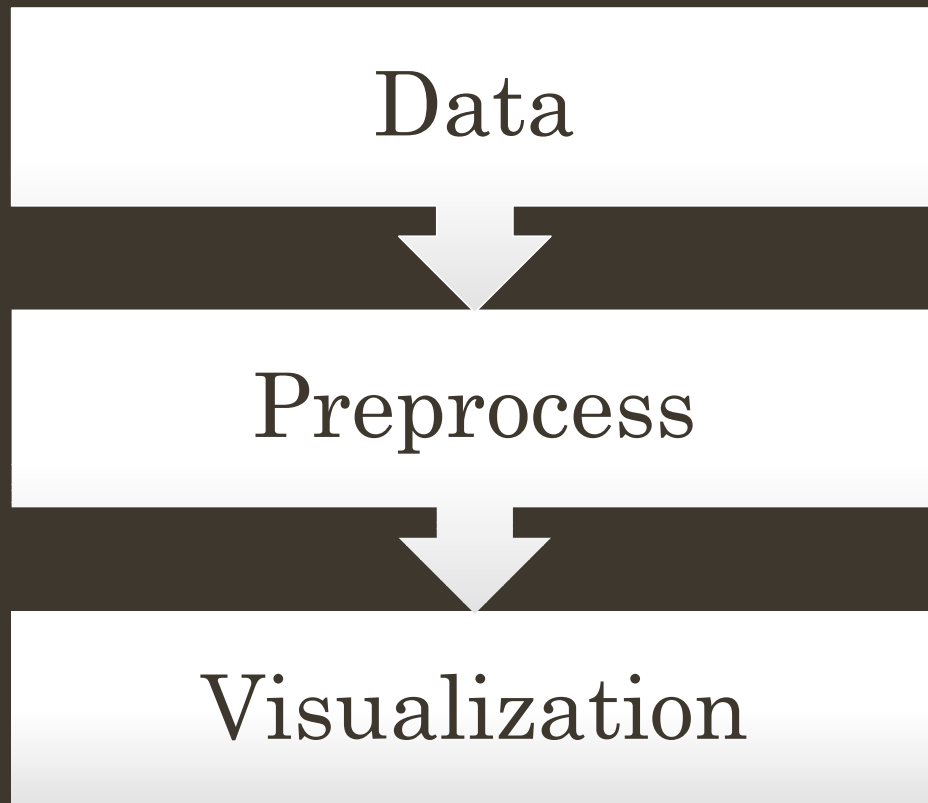


# Occpollution package

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# Table of content



1) INPUT/OUTPUT (IO submodule)

2) DATA PROCESSING (PREPROCESS submodule)

3) OCCITANIE MAP

4) ANIMATION (ANI submodule)

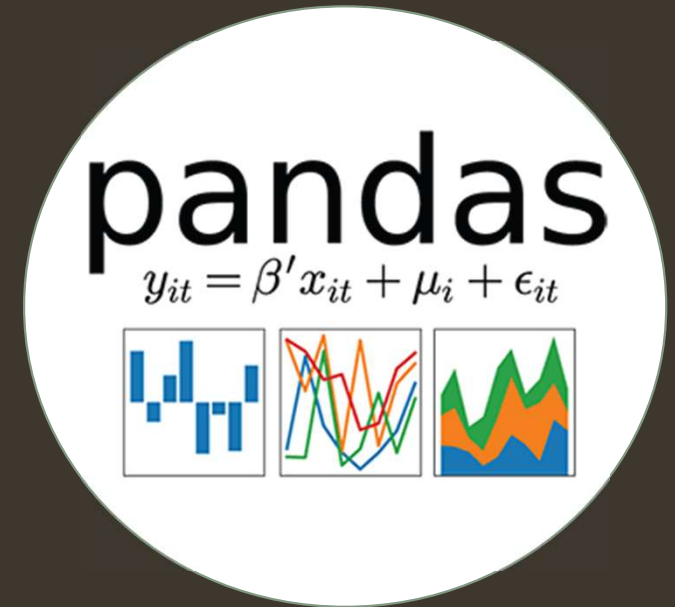
5) DEMONSTRATION

# Input/Output



Pollution in Occitanie data,  
in particular ozone

- Load\_db class
- Download package



- Pandas data frame
- Read\_csv method

# Data processing

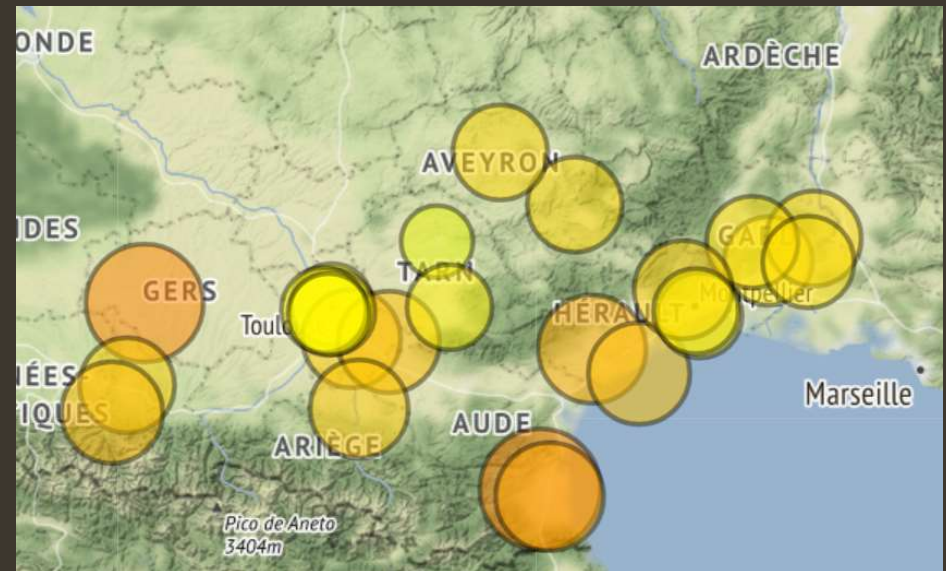
Python Functions	Usefulness	Used packages and methods
Get_ozone_an	Data treatment for static map (2018 case)	pandas.to_datetime numpy
Get_ozone_day	Data treatment for the animation	pandas.to_datetime numpy sort_values
Color_scale	Color scale for maps	branca.colormap

# Occitanie map

## Used functions and packages

- `Get_ozone_an` (from `occpollution.preprocess`)
- `Color_scale` (from `occpollution.preprocess`)
- `Folium` package

## Ozone pollution in 2018



# Animation: Evolution of ozone accross time

Building maps



```
graph TD; A[Building maps] --> B[Html/png conversion]; B --> C[Video editing];
```

Html/png conversion

Video editing

Map\_day function:

- Get\_ozone\_day
- Color\_scale
- Folium package

Map\_iteration:

- Selenium package
- ChromeDriver

Animation:

- Imageio package



# Package demonstration by a video

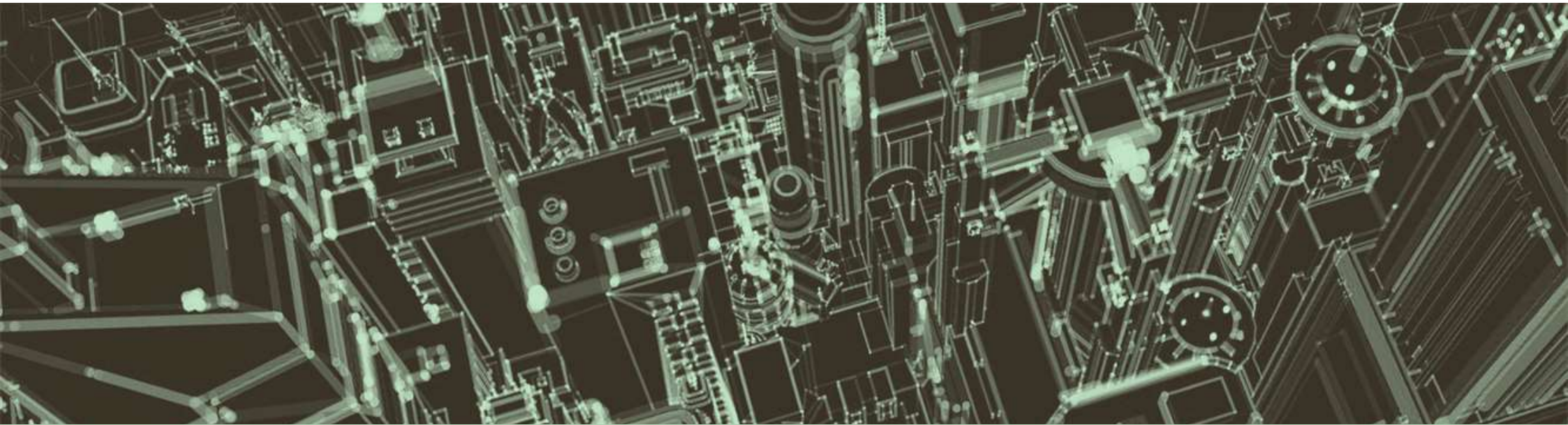
The animation.py file build the video in about 20 minutes!

```
>>> import pandas as pd
>>> import os, sys, occpollution

>>> occ_j = pd.read_csv(path_target) # import data
>>> occ_j = occpollution.get_ozone_day(occ_j) # treatment of data
>>> map_iteration(occ_j)
>>> animation()

>>> papapath = os.path.join(os.path.dirname(os.path.abspath(__file__)), "animation.gif")
>>> os.system("chrome "+papapath)

>>> # Another demonstration with just a map
>>> occ_df = occpollution.Load_db().save_as_df()
>>> occpollution.plot_interactive_map(occpollution.get_ozone_an(occ_df))
>>> papath = os.path.join(os.path.dirname(os.path.abspath(__file__)), 'map_occitanie2018.html')
>>> os.system('chrome '+papath)
```



Thank you for your attention!

