

voronoi_diagrams_02

July 2, 2025

```
[1]: # CONFIG CELL
from notebook_utils import set_root_directory

set_root_directory()

[2]: from collections import defaultdict

import geopandas as gpd
from ipywidgets import interact, Dropdown, fixed, widgets

from app import constants
from app.plot_utils import plot_voronoi, plot_voronoi_area_boxplot, ↵
    ↪plot_voronoi_area_timeseries

[3]: VORONOI_FILE = "input_files/sensor_metadata_24h_with_voronoi.parquet"

[4]: df_voronoi = gpd.read_parquet(VORONOI_FILE)

[5]: voronoi_columns = list(
    filter(lambda col_name: col_name.endswith(constants.VORONOI_GEOMETRY), ↵
    ↪df_voronoi.columns)
)

[6]: years_by_variable = defaultdict(list)

for col in voronoi_columns:
    var, year, _, _ = col.split("_")
    years_by_variable[var].append(year)

[ ]: def interactive_plot(gdf: gpd.GeoDataFrame, variable: str):
    return interact(
        plot_voronoi,
        gdf=fixed(gdf),
        variable=widgets.fixed(variable),
        year=Dropdown(options=years_by_variable[variable], description="Rok:"),
    )
```

```
interact(
  interactive_plot,
  gdf=fixed(df_voronoi),
  variable=Dropdown(options=years_by_variable.keys(), description="Zmienna:"),
)
```

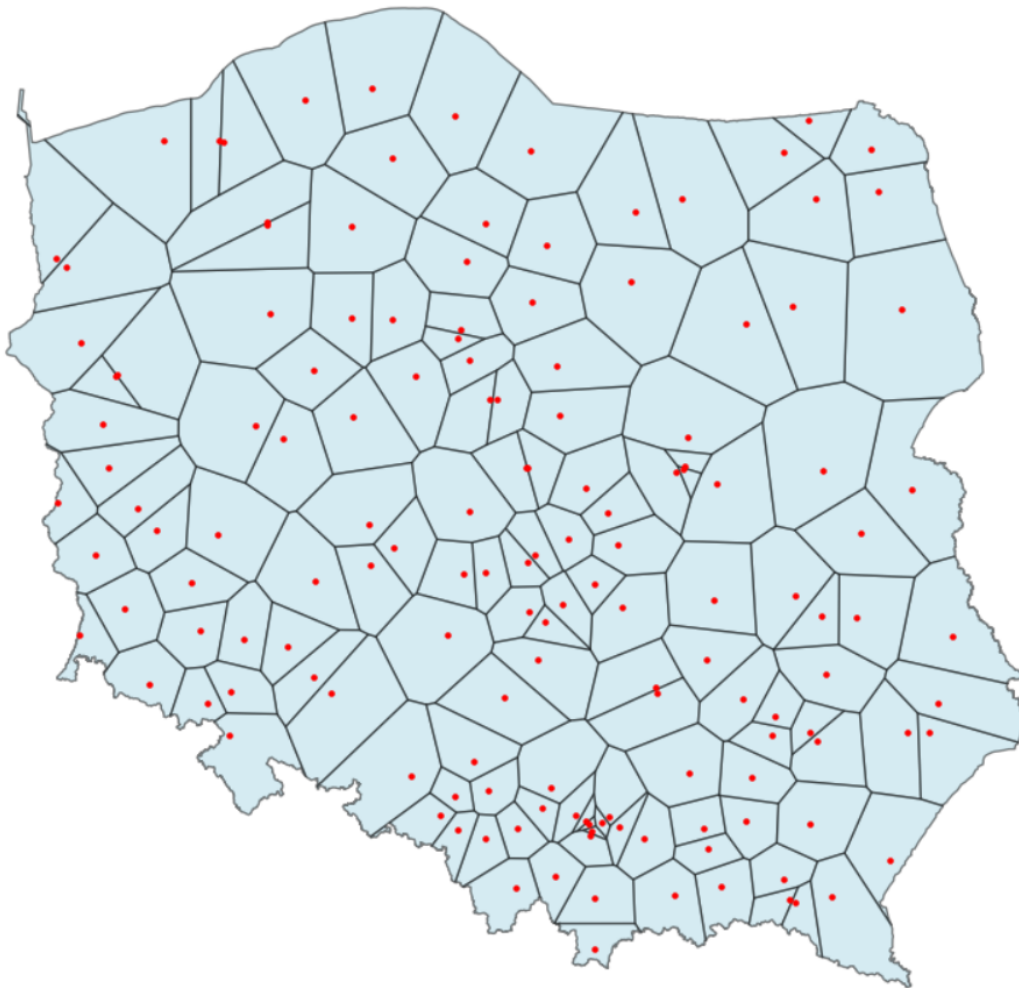
```
interactive(children=(Dropdown(description='Zmienna:', options=('C6H6', 'NO2',
↵ 'PM2.5', 'PM10', 'SO2')), value=...
```

```
[ ]: <function __main__.interactive_plot(gdf: geopandas.geodataframe.GeoDataFrame,
variable: str)>
```

Zmienna: PM10 ▼

Rok: 2021 ▼

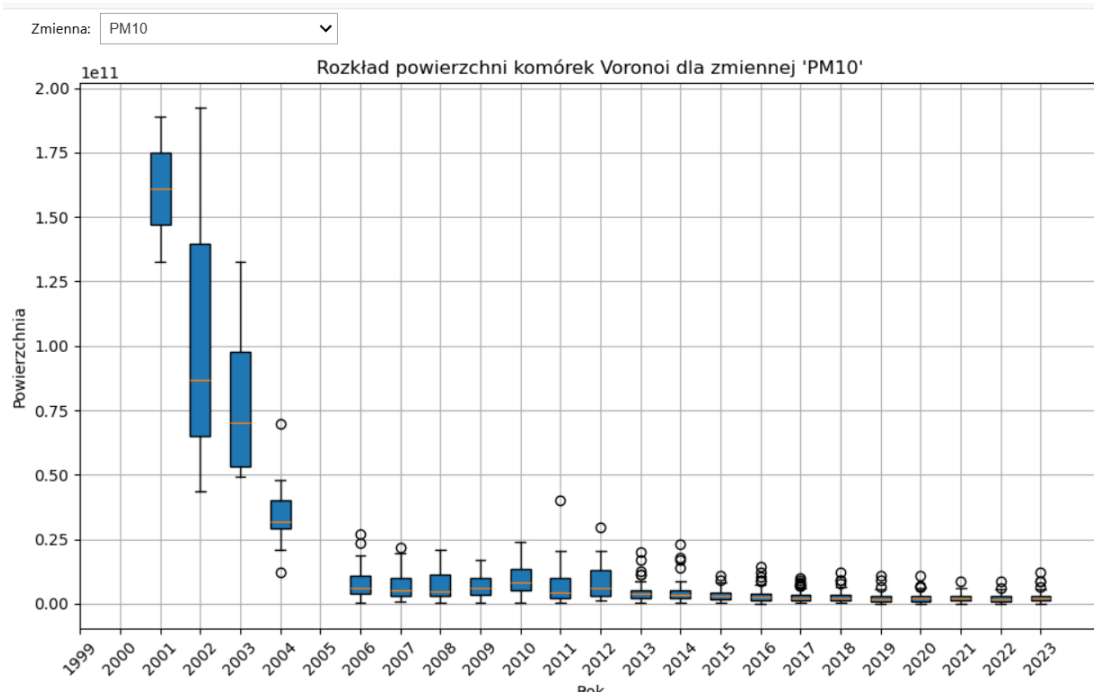
Zmienna: PM10, Rok: 2021



```
[8]: interact(
    plot_voronoi_area_boxplot,
    gdf=fixed(df_voronoi),
    variable=Dropdown(options=years_by_variable.keys(), description="Zmienna:"),
    min_year=fixed(2000),
    max_year=fixed(2024),
)
```

```
interactive(children=(Dropdown(description='Zmienna:', options=('C6H6', 'NO2',
↵ 'PM2.5', 'PM10', 'SO2')), value=...
```

```
[8]: <function app.plot_utils.plot_voronoi_area_boxplot(gdf:
geopandas.geodataframe.GeoDataFrame, variable: str, min_year: int, max_year:
int)>
```



```
[ ]: interact(
    plot_voronoi_area_timeseries,
    gdf=fixed(df_voronoi),
    variable=Dropdown(options=years_by_variable.keys(), description="Zmienna:"),
    min_year=fixed(2000),
    max_year=fixed(2024),
)
```

```
interactive(children=(Dropdown(description='Zmienna:', options=('C6H6', 'NO2',
↵ 'PM2.5', 'PM10', 'SO2')), value=...
```

```
[ ]: <function app.plot_utils.plot_voronoi_area_timeseries(gdf:
geopandas.geodataframe.GeoDataFrame, variable: str, min_year: int, max_year:
int)>
```

