

GRAFIKA UŻYTKOWA

Projekt: WIZUALIZACJA DANYCH - cz. 2

Prowadzący: dr inż. Łukasz Dzierżanowski

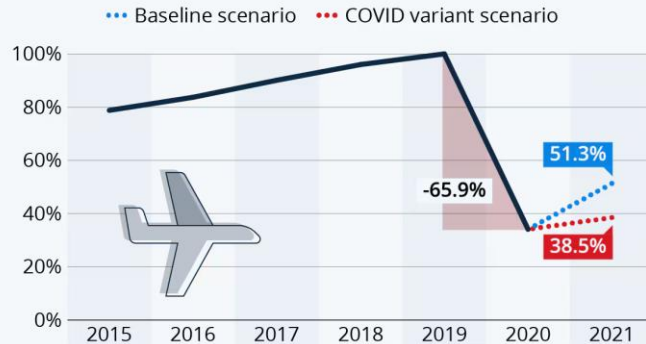
Grupa:
Paweł Cedzich
Paweł Siemiginowski

ZAWĘŻONA TEMATYKA WIZUALIZACJI

Wpływ największych zdarzeń globalnych na lotnictwo (lata 2016-2024).

Pandemic Causes Historic Decline in Air Passenger Traffic

Global air passenger traffic (revenue passenger kilometers) as a percentage of 2019 traffic



Source: IATA



statista

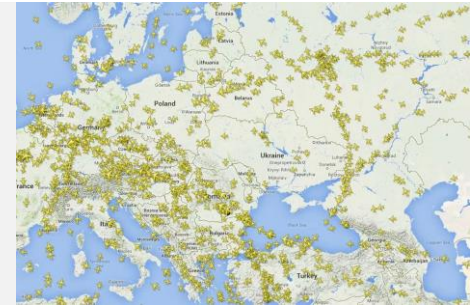
Fordham International Law Journal

48 YEARS OF IMPACTFUL SCHOLARSHIP

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The Legal Battle Over \$8 Billion of Aircraft – The Impact of Russia's Invasion of Ukraine on the International Aviation Market

DASHA BABAYTSEVA · APRIL 17, 2023



Airways Special Report: Handling the Threats

May 16 · Written By Joshua Kupietzky

Originally published on [Airways](#)

In the wake of Hamas' October 7 surprise attack upon southern Israel, almost all international airlines serving Israel immediately suspended service as a precautionary measure, knowing that an inevitable Israeli ground invasion loomed ahead. In the ensuing war, rockets and drones have been filling the skies, not only putting civilian lives in jeopardy but also posing severe threats to the safety of civil aviation.

Regardless, Israeli flag carrier El Al (LY) and Israeli leisure carriers Arkia (IZ) and Israir (6H) continued to put planes in the air, even as most airlines from North American and Europe suspended flights to Tel Aviv, in effect giving the Israeli airlines a monopoly.

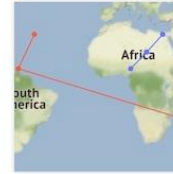
TECHNOLOGIE



MapLibre Migration



Tile Choropleth Maps



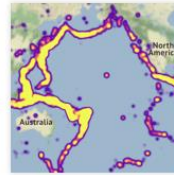
Lines on Tile Maps



Filled Area on Tile Maps



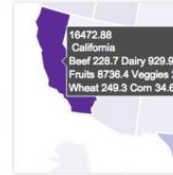
Bubble Maps



Density Heatmap



Lines on Maps



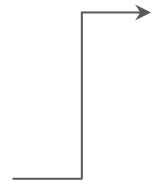
Choropleth Maps



Tile Map Layers



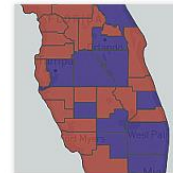
Scatter Plots on Tile Maps



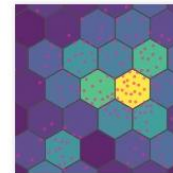
USA County Choropleth Maps



Scatter Plots on Maps

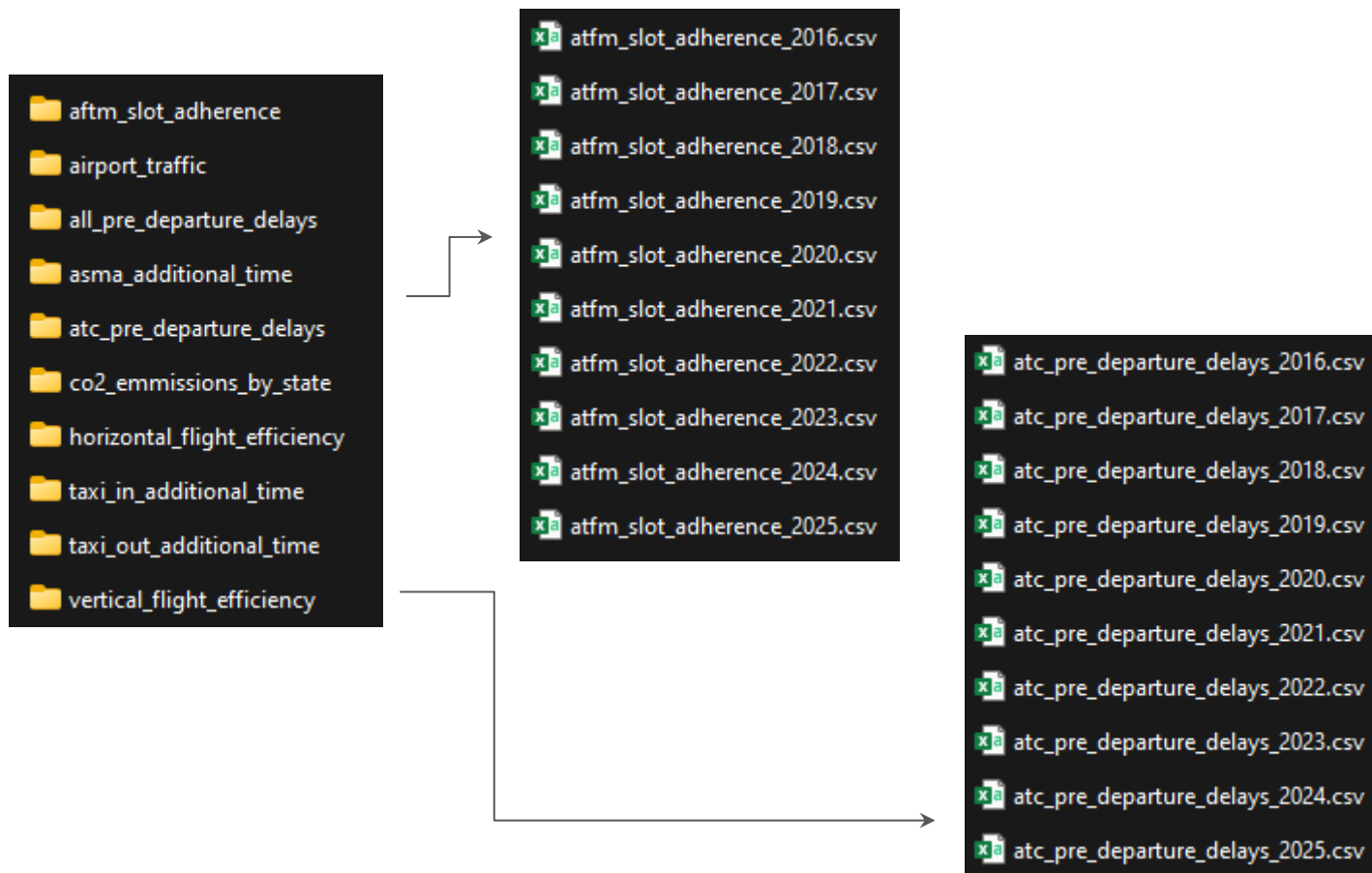


Map Configuration and Styling on Geo Maps



Hexbin Mapbox

POZYSKANIE DATASETU

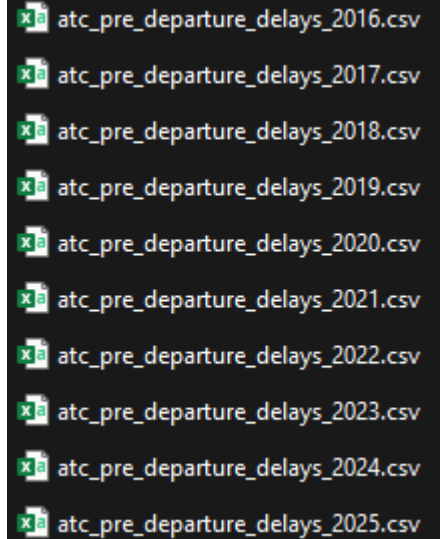


PREPROCESSING DATASETU

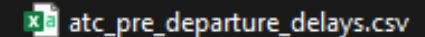
```
import os
import pandas as pd

base_dir = os.getcwd()

for folder in os.listdir(base_dir):
    folder_path = os.path.join(base_dir, folder)
    if os.path.isdir(folder_path):
        csv_files = [f for f in os.listdir(folder_path) if f.endswith('.csv')]
        if not csv_files:
            continue
        dfs = []
        for csv_file in csv_files:
            file_path = os.path.join(folder_path, csv_file)
            try:
                df = pd.read_csv(file_path, header=None, dtype=str, engine='python')
                dfs.append(df)
            except Exception as e:
                print(f"Błąd wczytywania {file_path}: {e}")
        if dfs:
            concat_df = pd.concat(dfs, ignore_index=True)
            output_path = os.path.join(folder_path, f"{folder}.csv")
            concat_df.to_csv(output_path, index=False, header=False)
            print(f"Scalono {len(dfs)} plików do {output_path}")
```



atc_pre_departure_delays_2016.csv
atc_pre_departure_delays_2017.csv
atc_pre_departure_delays_2018.csv
atc_pre_departure_delays_2019.csv
atc_pre_departure_delays_2020.csv
atc_pre_departure_delays_2021.csv
atc_pre_departure_delays_2022.csv
atc_pre_departure_delays_2023.csv
atc_pre_departure_delays_2024.csv
atc_pre_departure_delays_2025.csv



atc_pre_departure_delays.csv

WCZYTYWANIE DANYCH

```
def load_csv(folder_name):
    folder_path = os.path.join(base_dir, folder_name)
    file_name = f"{folder_name}.csv"
    file_path = os.path.join(folder_path, file_name)
    if os.path.exists(file_path):
        try:
            return pd.read_csv(file_path, low_memory=False)
        except Exception as e:
            print(f"Błąd podczas wczytywania pliku {file_name}: {e}")
            return None
    else:
        print(f"Plik {file_name} nie istnieje w folderze {folder_name}")
        return None

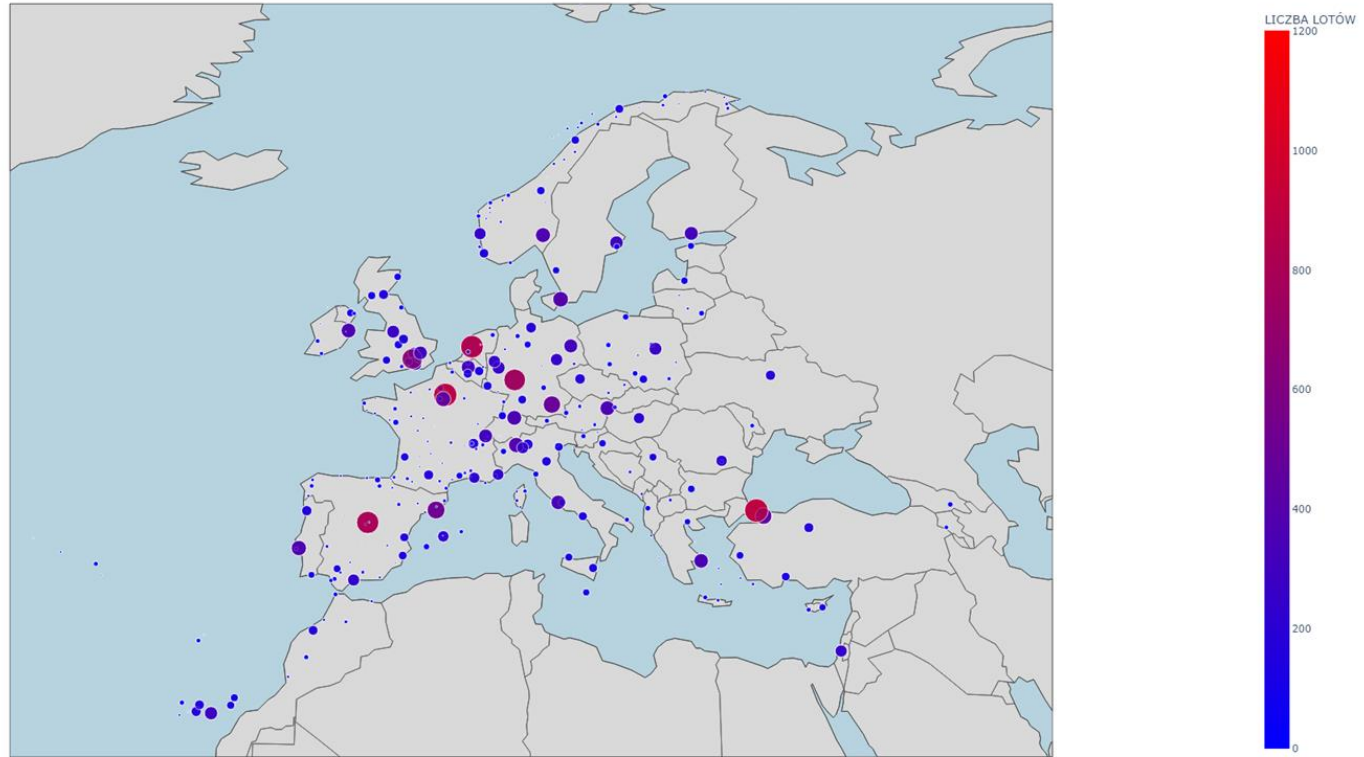
airport_traffic_df = load_csv('airport_traffic')
```

```
merged_df = pd.merge(
    airport_traffic_df,
    airports_location_df,
    left_on='APT_ICAO',
    right_on='ident',
    how='inner'
```

	YEAR	MONTH_NUM	MONTH_MON	FLT_DATE	APT_ICAO	APT_NAME	STATE_NAME	FLT_DEP_1	FLT_ARR_1	FLT_TOT_1
3064299	2025	04	APR	2025-04-30	EGNX	East Midlands	United Kingdom	77	84	161
3064300	2025	04	APR	2025-04-30	EGPD	Aberdeen	United Kingdom	61	61	122
3064301	2025	04	APR	2025-04-30	EGPF	Glasgow	United Kingdom	101	102	203
3064302	2025	04	APR	2025-04-30	EGPH	Edinburgh	United Kingdom	179	176	355
3064303	2025	04	APR	2025-04-30	EGSS	London - Stansted	United Kingdom	272	273	545

WIZUALIZACJA - PRZYKŁAD UKRAINY

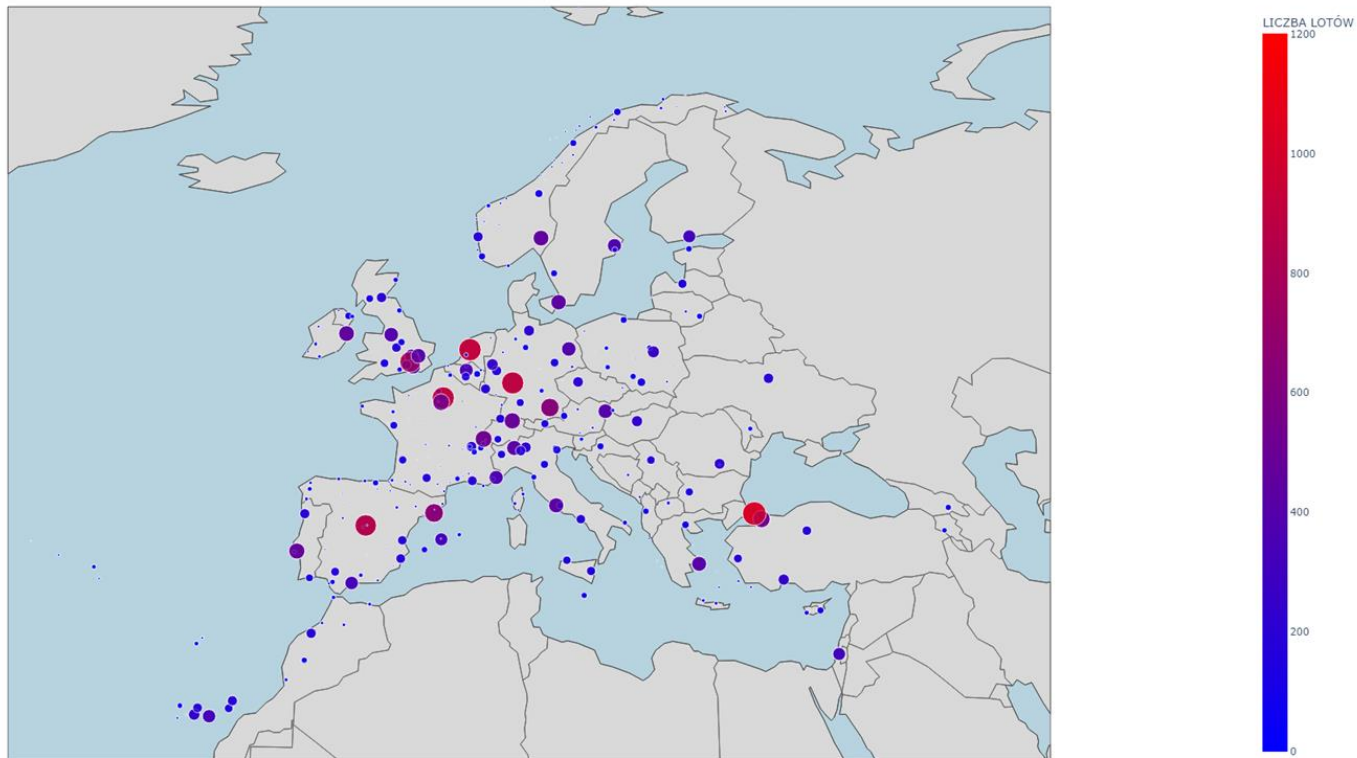
RUCH LOTNICZY NA LOTNISKACH W DNIU 16.02.2022 r.



2022-02-16.html

WIZUALIZACJA - PRZYKŁAD UKRAINY

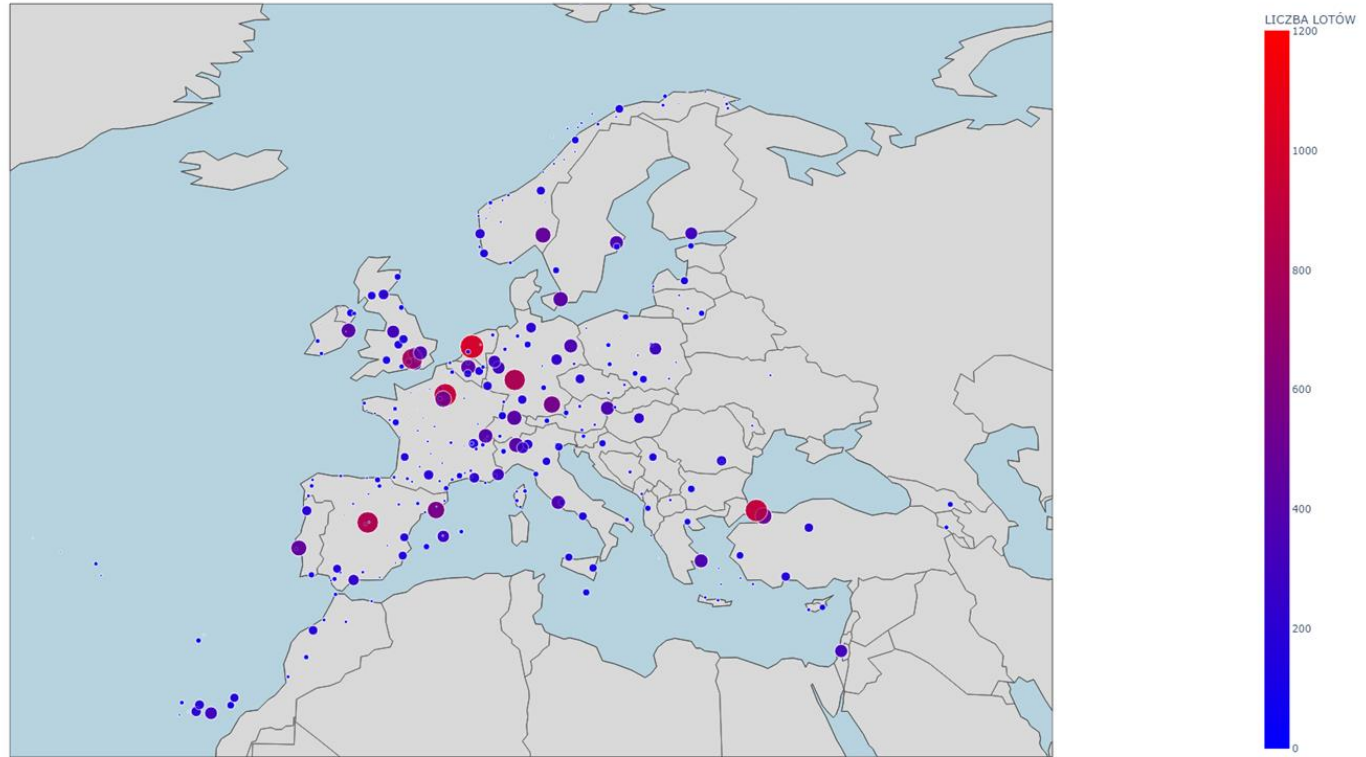
RUCH LOTNICZY NA LOTNISKACH W DNIU 20.02.2022 r.



2022-02-20.html

WIZUALIZACJA - PRZYKŁAD UKRAINY

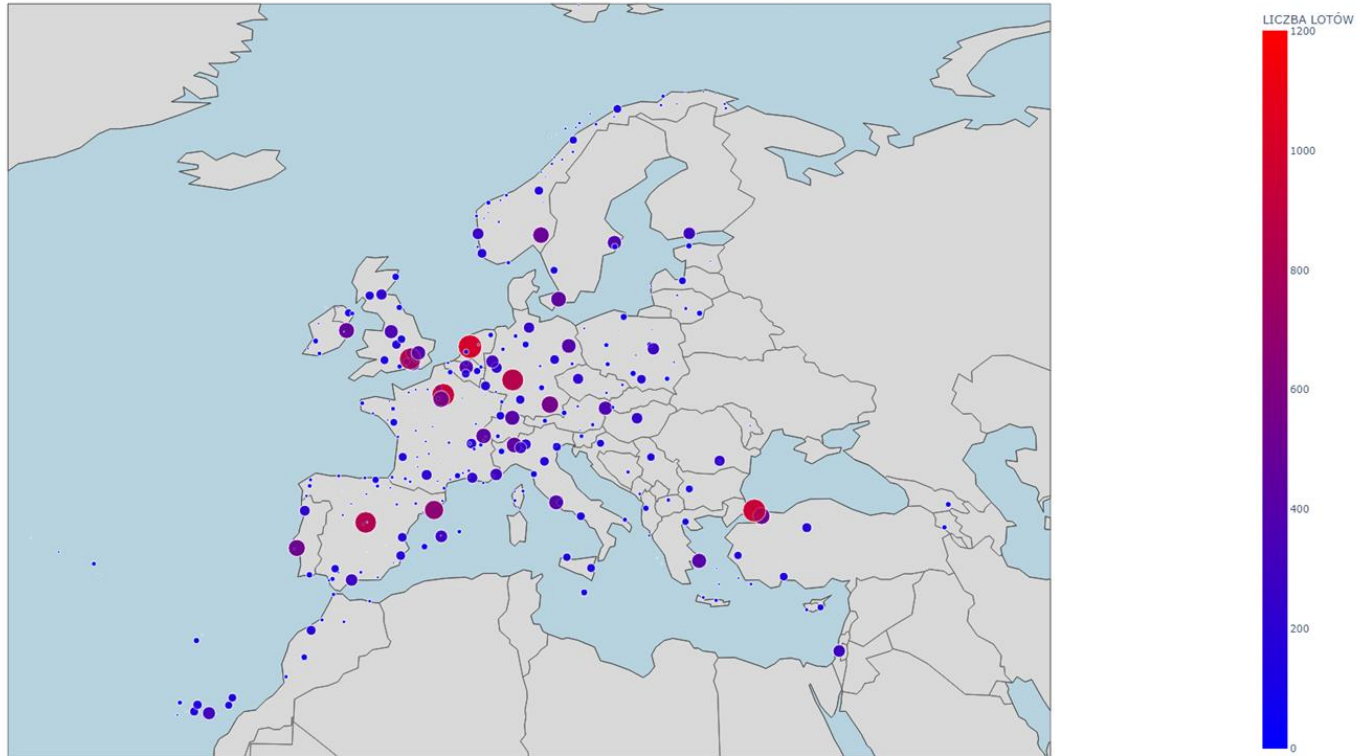
RUCH LOTNICZY NA LOTNISKACH W DNIU 24.02.2022 r.



2022-02-24.html

WIZUALIZACJA - PRZYKŁAD UKRAINY

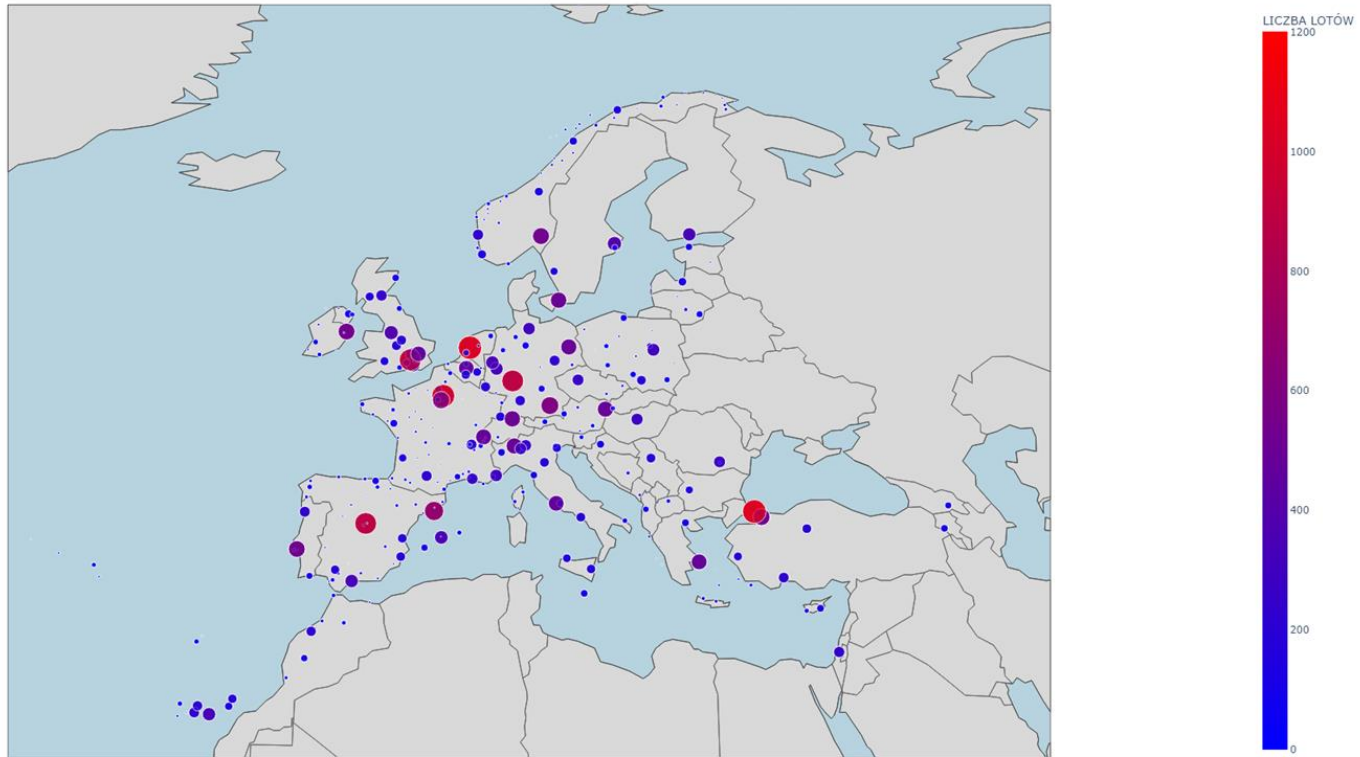
RUCH LOTNICZY NA LOTNISKACH W DNIU 28.02.2022 r.



2022-02-28.html

WIZUALIZACJA - PRZYKŁAD UKRAINY

RUCH LOTNICZY NA LOTNISKACH W DNIU 04.03.2022 r.



2022-03-04.html