

Senti-water demo #3

What we have done so far?

- Downloading an image from the satellite at a specific place and time
- Showing downloaded data
- Calculating the mask of water by subtracting the individual layers (NDWI technique)
- Extracting water and present it clearly in the satellite image

What we have done so far?

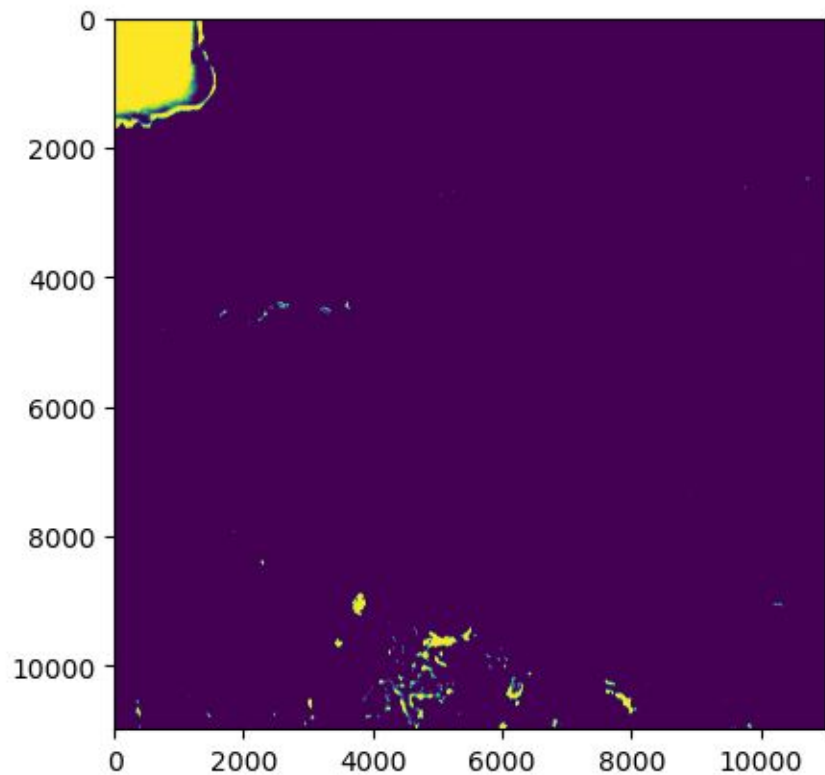
- Creating a database (IBM Cloudant)
- Preprocessing optimizations (+ download only the required files)
- Creating an algorithm that calculates the center of a water reservoir
- Design and simplification of the shape of a water reservoir
- Created simple React application that shows our data

What we planned to do in Sprint 2?

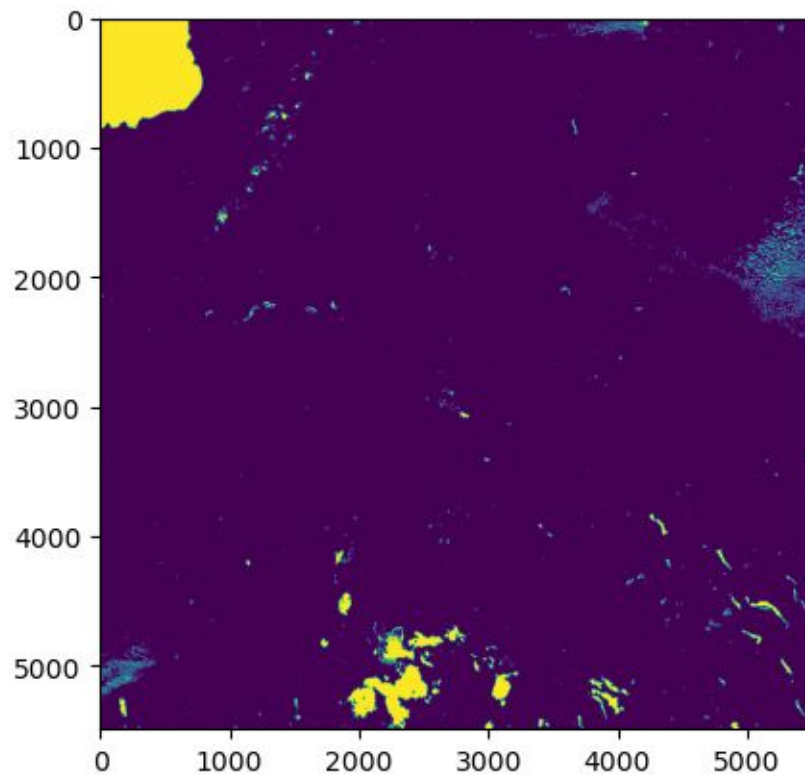
- Algorithm that calculates water reservoir geometry from water mask
- Extend data stored in DB: (center of water body, geometry, surface area, timestamp, name field)
- Second water retrieval method (MNDWI)
- Further pipeline optimization (with metrics)
- Application extension:
 - Ability to edit entries (adding name to existing data)
 - Showing additional data (surface area, timestamp, name)
 - (STRETCH) Showing water mask, geometry and original satellite photo

What we did in Sprint 2?

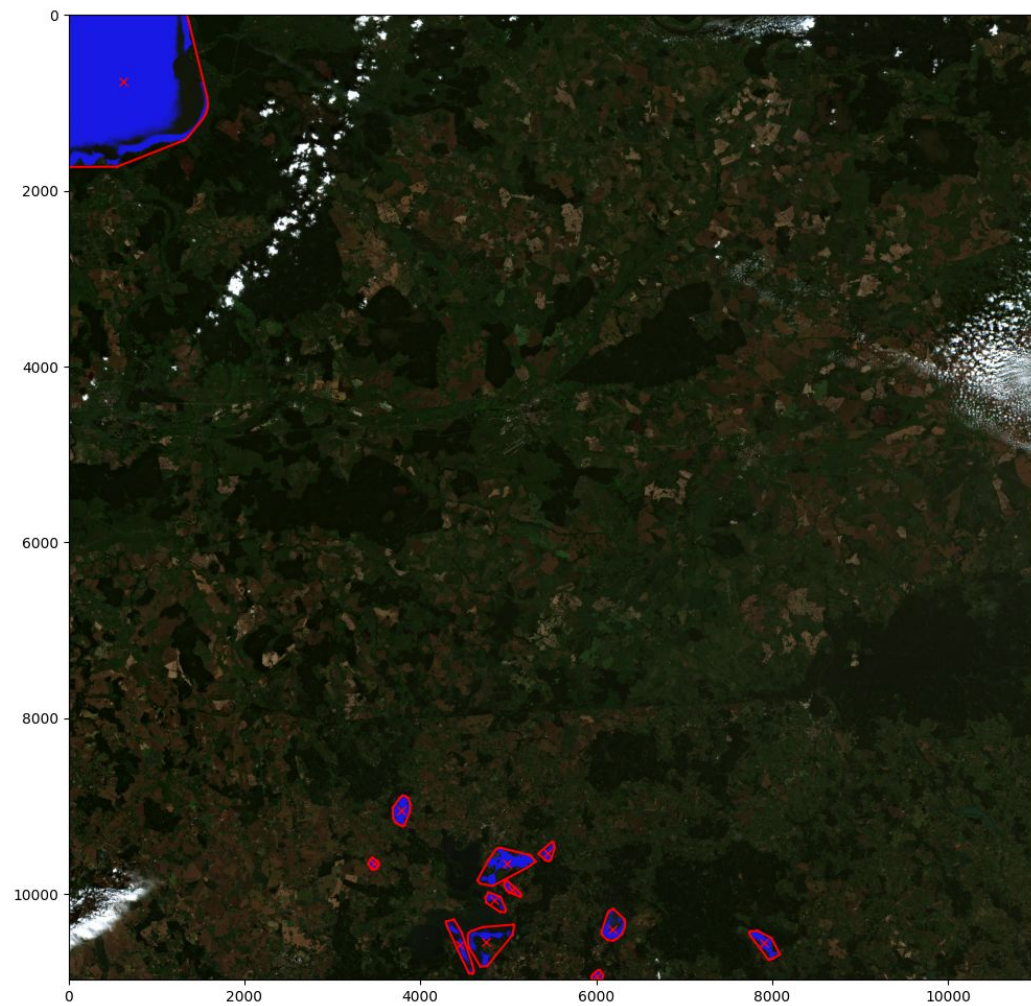
- Algorithm that calculates water reservoir geometry from water mask
- Extend data stored in DB: (center of water body, geometry, surface area, timestamp, name field)
- Second water retrieval method (MNDWI) (partially)
- Further pipeline optimization (with metrics)
- Application extension:
 - Ability to edit entries (adding name, description to existing data)
 - Showing additional data (surface area, timestamp, name)
 - (STRETCH) Showing water mask, geometry and original satellite photo (partially)



NDWI



MNDWI



Water bodies

| Table ID | Name | Latitude | Longitude | area (km^2) |
|-----------------------------|--------------------------------------|-------------------|-----------|--------------------|
| 11 | malopolskie_set_2021_126946467304811 | 49.76949 | 22.22775 | 0.07597 |
| 12 | malopolskie_set_2021_127191274915423 | 49.87214 | 22.99142 | 0.11618 |
| 13 | malopolskie_set_2021_133917728909842 | 49.85853 | 23.44875 | 0.10188 |
| 14 | malopolskie_set_2021_138806140772523 | 49.60325 | 22.23552 | 0.09366 |
| 15 | malopolskie_set_2021_13949108082623 | 50.53686 | 21.63607 | 0.08016 |
| 16 | malopolskie_set_2021_144686042391411 | 49.85802 | 22.9971 | 0.14936 |
| 17 | malopolskie_set_2021_156381566907084 | 49.84283 | 23.33702 | 0.12719 |
| 18 | malopolskie_set_2021_15985959029398 | 50.54125 | 21.64393 | 0.41644 |
| 19 | malopolskie_set_2021_169713551711725 | 49.79272 | 23.64008 | 0.07563 |
| 20 | malopolskie_set_2021_176963923561747 | 49.78215 | 22.68019 | 0.13374 |
| Water bodies per page: 10 ▾ | | 11–20 of 44 items | | 2 ▾ of 5 pages ◀ ▶ |

Details

Name

testttttt

Description

Cancel Save

Centroid coordinates

49.843°N, 23.337°E

Surface area

0.1272 km²

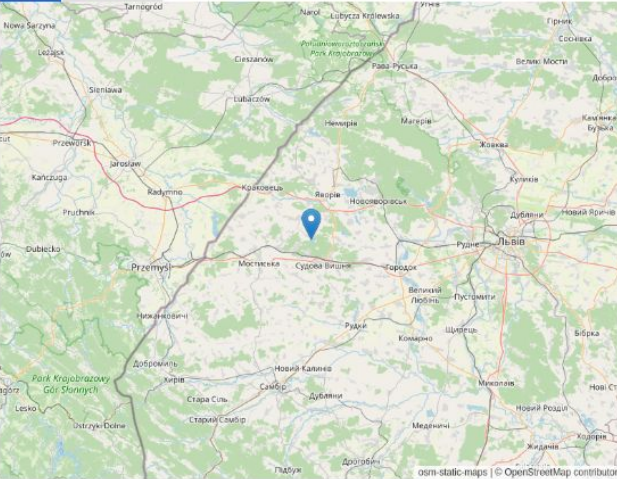
Satellite data timestamp

2022-11-20 00:18:55.240542

Polygon length

23

Big Detailed



Water bodies

| Table ID | Name | Latitude | Longitude | area (km^2) |
|-----------------------------|--------------------------------------|-------------------|-----------|----------------|
| 11 | malopolskie_set_2021_126946467304811 | 49.76949 | 22.22775 | 0.07597 |
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| Water bodies per page: 10 ▾ | | 11–20 of 44 items | | 2 ▾ of 5 pages |

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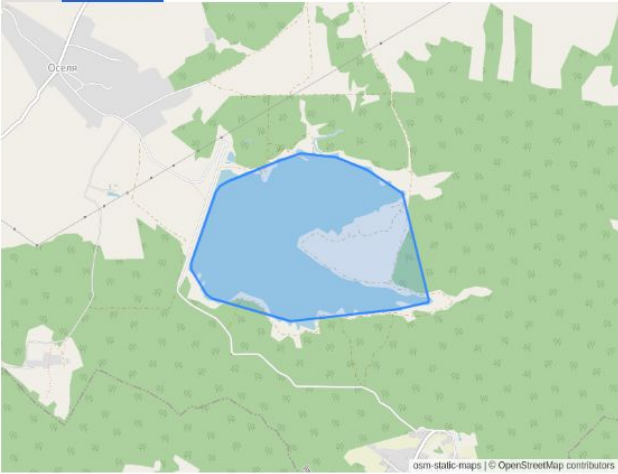
2022-11-20 00:18:55.240542

Polygon length

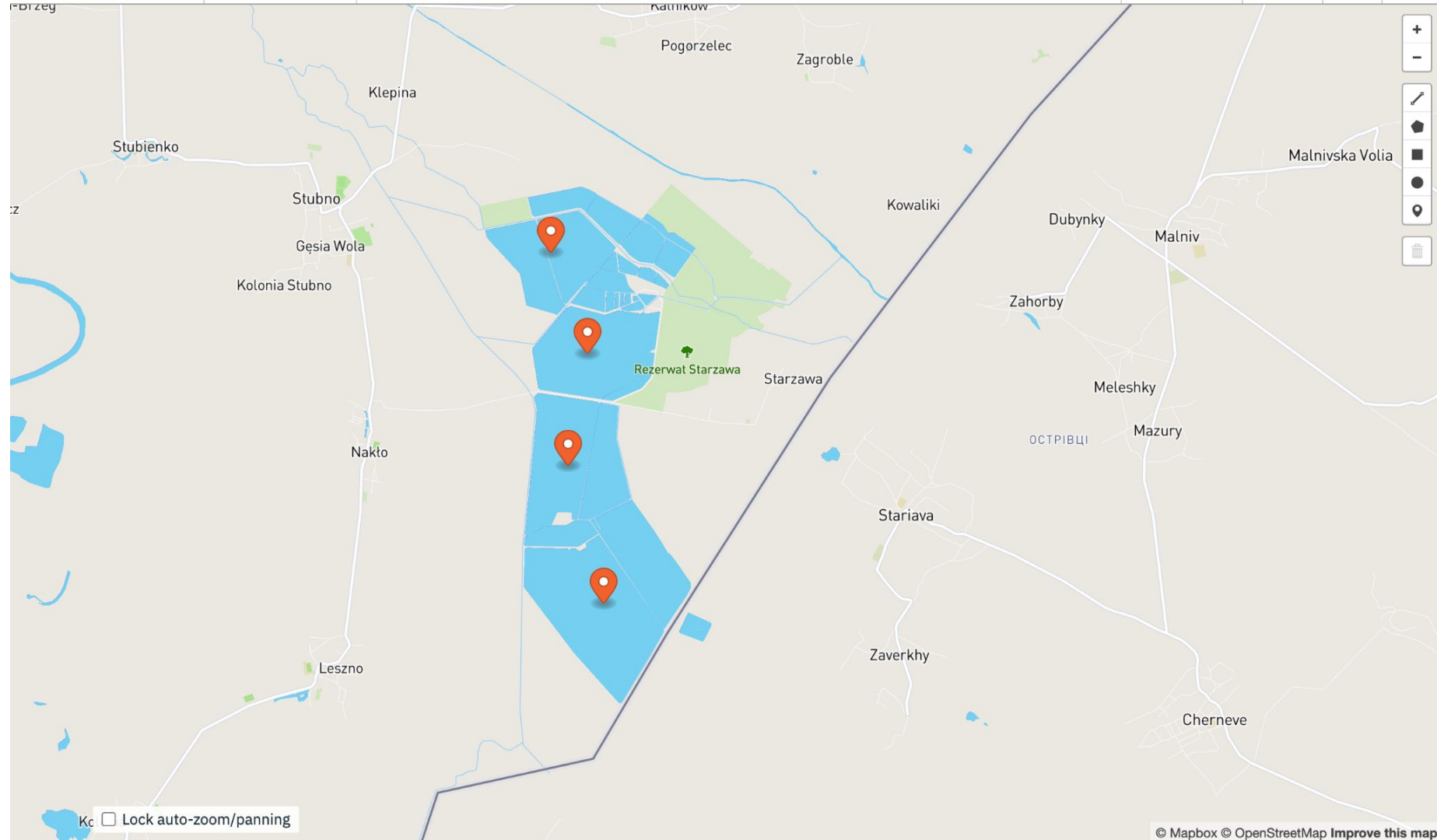
23

Big

Detailed



osm-static-maps | © OpenStreetMap contributors



What are we planning to do next?

- Web application:
 - More editing and view capabilities
 - Create page for on demand water mask calculation
- Create serverless function that calculates water masks on demand
- Further pipeline optimizations
- Create documentation for the application and the pipeline