Partial Analysis of Flooding in the Oleshky Settlement Area after the Demolition of the Kakhovka Hydroelectric Power Plant: Conclusions and Results

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This brief report presents the results of the analysis of the flooded areas in the settlement of Oleshky after the demolition of the Kakhovka Hydroelectric Power Station (HPS). The objective of the study was to determine the number of flooded buildings and the area of the submerged residential housing.

Analysis Results:

1. Potentially flooded: A total of 5112 buildings were identified with an approximate total flooded area of 952,268.53 square meters.
2. Fully flooded: 1752 buildings were found to be completely submerged, with a total flooded area of 294,601.02 square meters.
3. Partially flooded: Flooding was observed in 1192 buildings, with a total flooded area of 230,633.33 square meters.
4. The total number of analyzed buildings was 8056, with a total flooded area of 1,477,502.88 square meters.

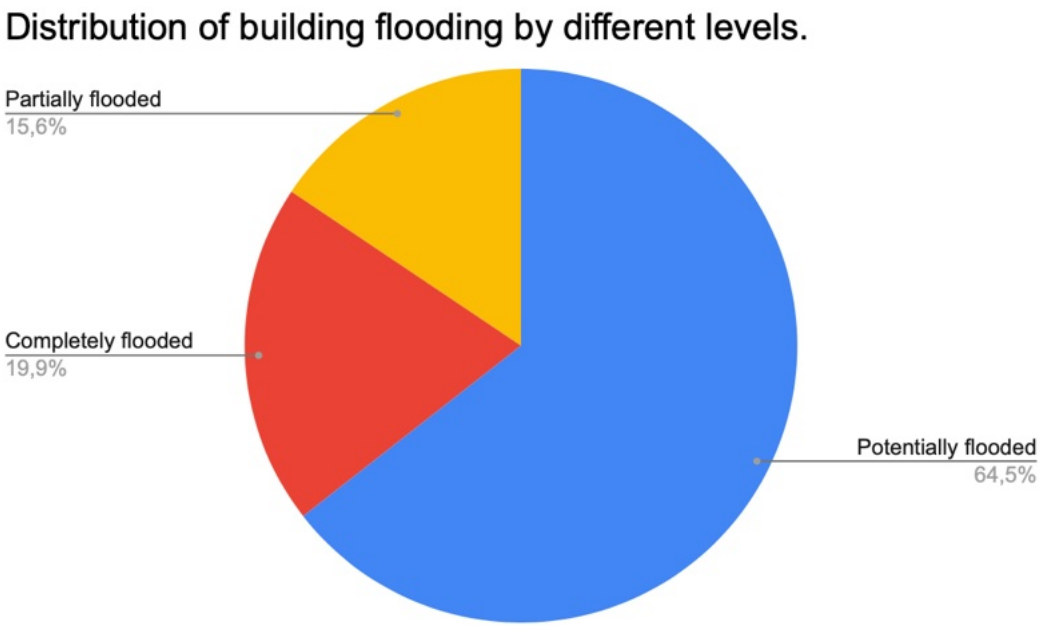
During the research, the boundary between the flooded and non-flooded areas was established by marking the outermost flood line. This line indicates the distribution boundary of the flooded buildings.

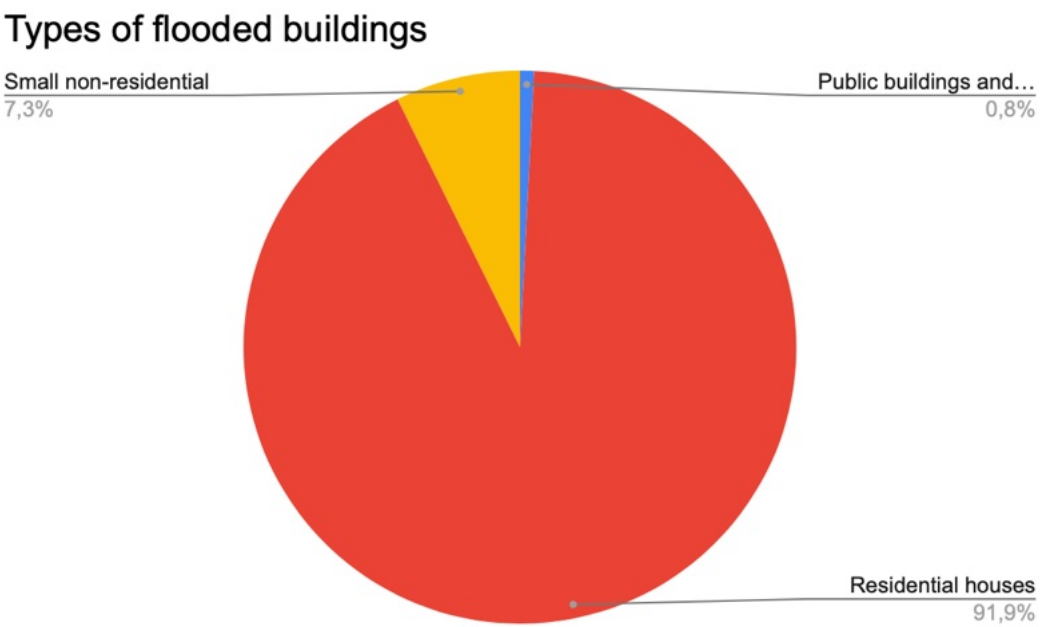
A method that was successfully utilized in the previous analysis was applied. This method includes the use of satellite imagery, analysis of elevation data, and information from open sources. The methodology involved analyzing satellite images, utilizing news data to refine information about flooded areas, and calculating the level of flooding for each building relative to the flood line using elevation data.

The collected data on elevations and flooding, combined with UNITAR and news resource data, served as the basis for processing and analysis, enabling the acquisition of information on the level of flooding and the condition of the buildings.

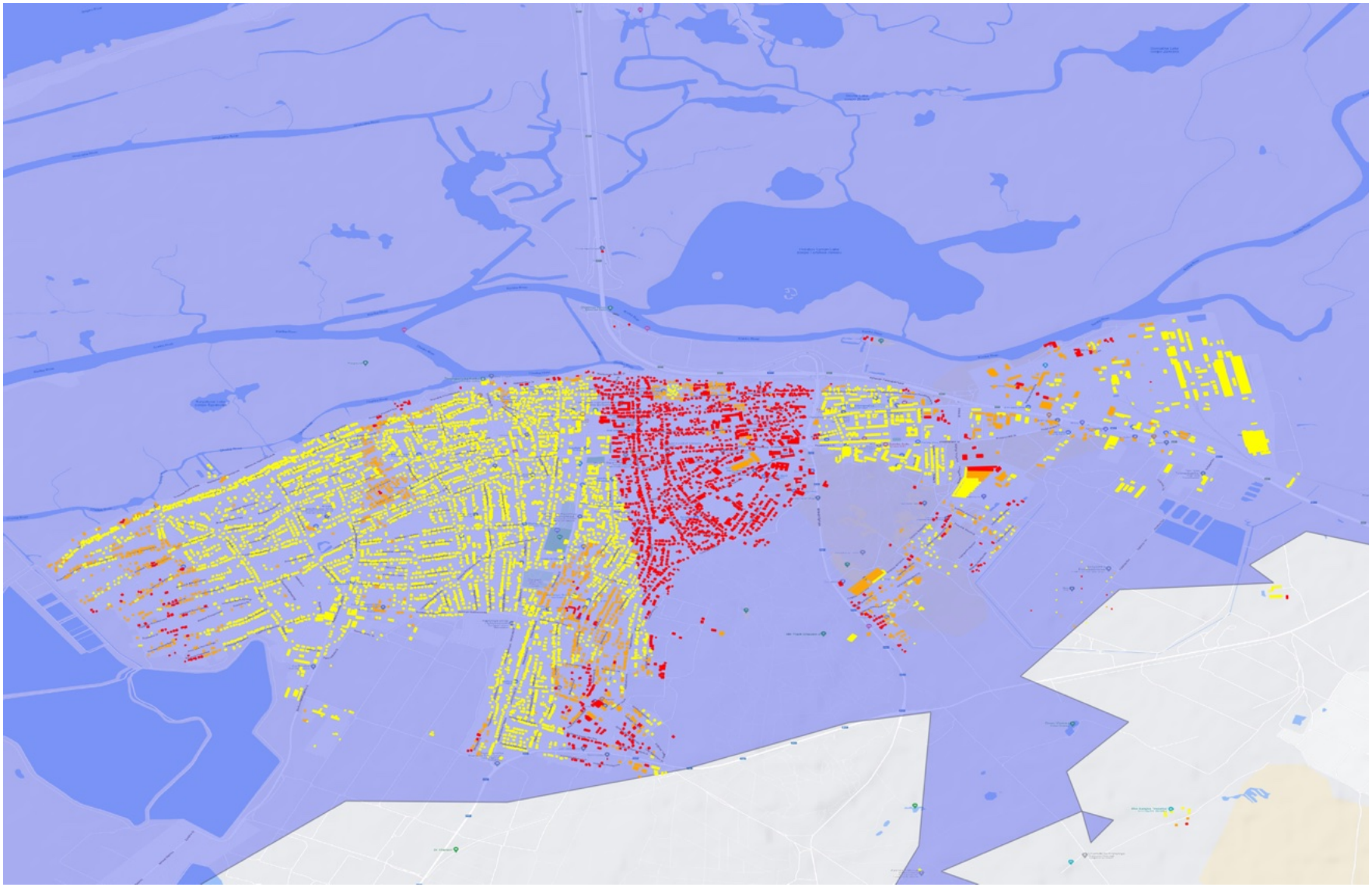
Establishing the boundary between the flooded and non-flooded areas by marking the outermost flood line is an important step in this method. It allowed us to obtain detailed information about the distribution of flooded buildings and determine their degree of flooding.

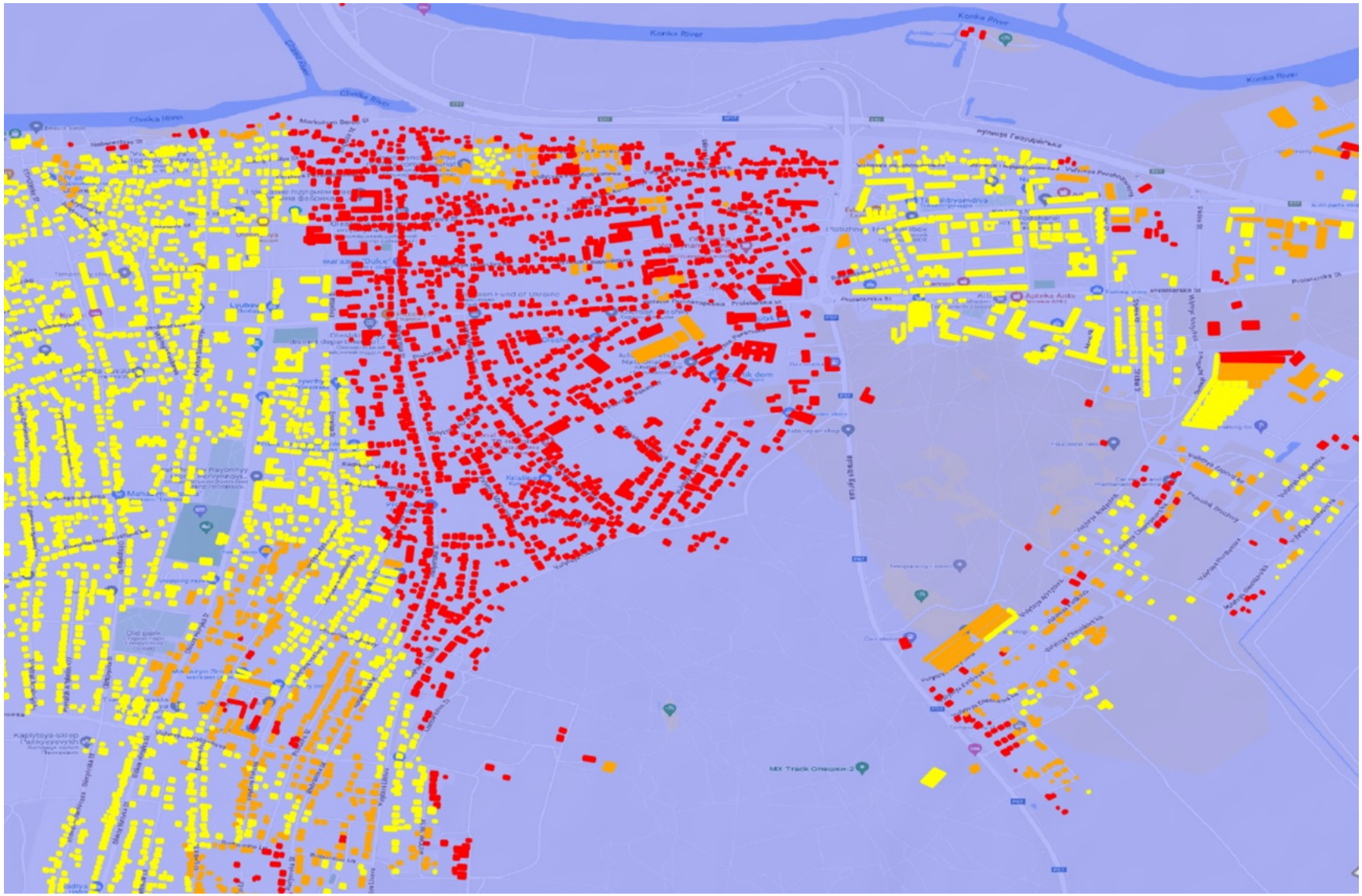
The calculated results of flooding in percentage values are presented in the diagrams below:



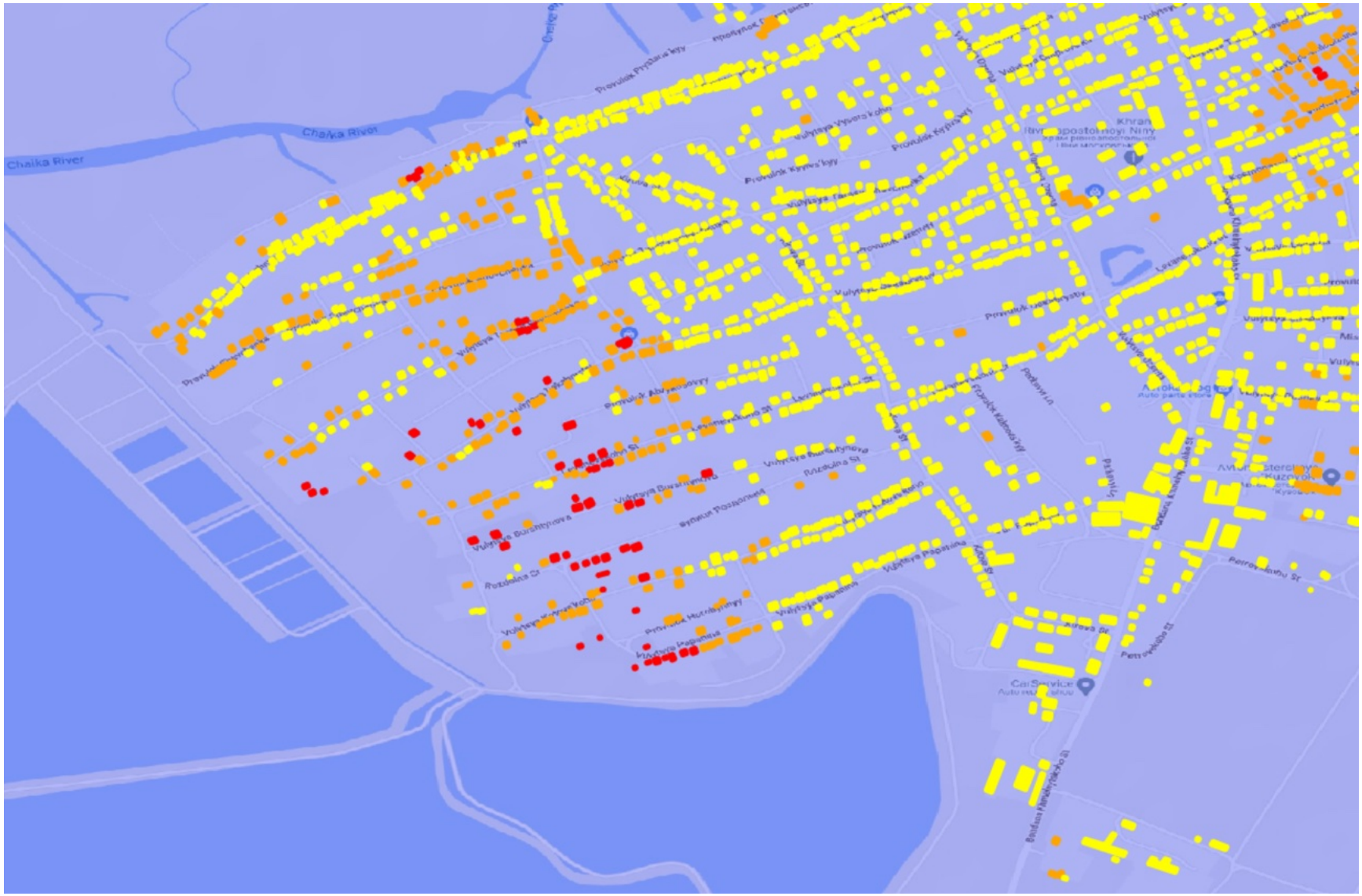


The images below show graphical representations of the results of the analysis of flooded houses after the demolition of the Kakhovka Hydroelectric Power Station. The maps demonstrate the distribution of flooded houses and the flood boundary line in the surveyed areas.

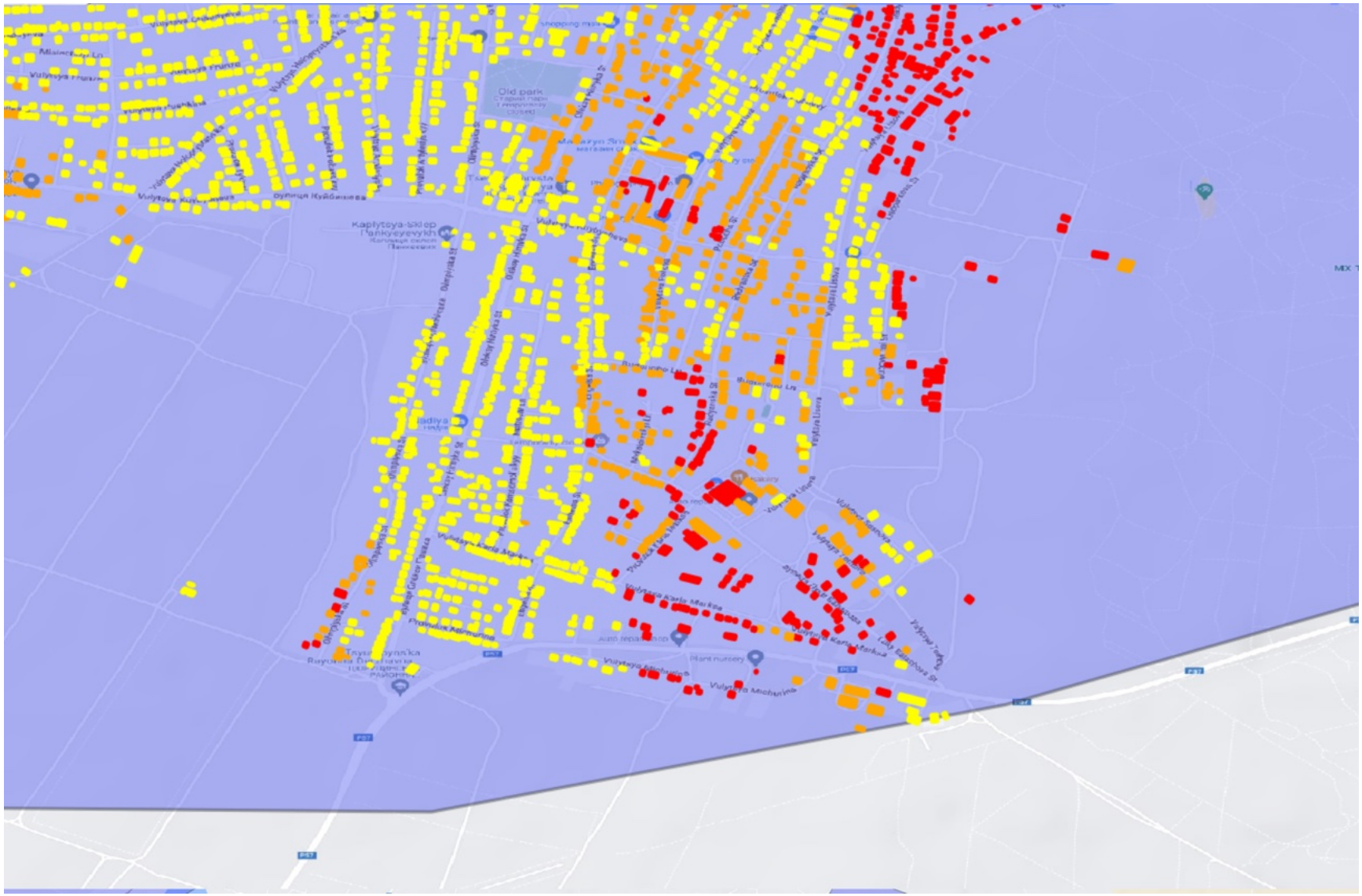




The central part of the Oleshky settlement.



The western part of the Oleshky settlement.



The northern part of the Oleshky settlement.

The map images provide more detailed information about the flooding of buildings in the Oleshky settlement area. The maps display buildings with polygons, each represented by a different color indicating the degree of flooding.

Completely flooded buildings are marked in red. These buildings were fully submerged in water or suffered significant damage (flooding exceeding 3 meters).

Partially flooded buildings are marked in orange. This means that these buildings were partially flooded, with some parts remaining above the water level (flooding between 1-3 meters).

Possibly flooded buildings are marked in yellow. This indicates that there is some uncertainty about the degree of flooding for these buildings, and further investigation and verification are required (flooding up to 1 meter).

Unflooded buildings are marked in black. This means that they did not fall within the flooded area boundaries.

These images visualize the flooding of buildings with different levels of damage, helping assess the extent of the flooding and identify areas with the highest number of affected buildings.

These conclusions were obtained during the research process and serve as interim results. The research is ongoing to study the entire flooded area and evaluate the consequences of the Kakhovka Hydroelectric Power Station Explosion.

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