The Cartographic Visualisations of the Population Movements during Mass Event with the Use of Drone (UAV)

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Content

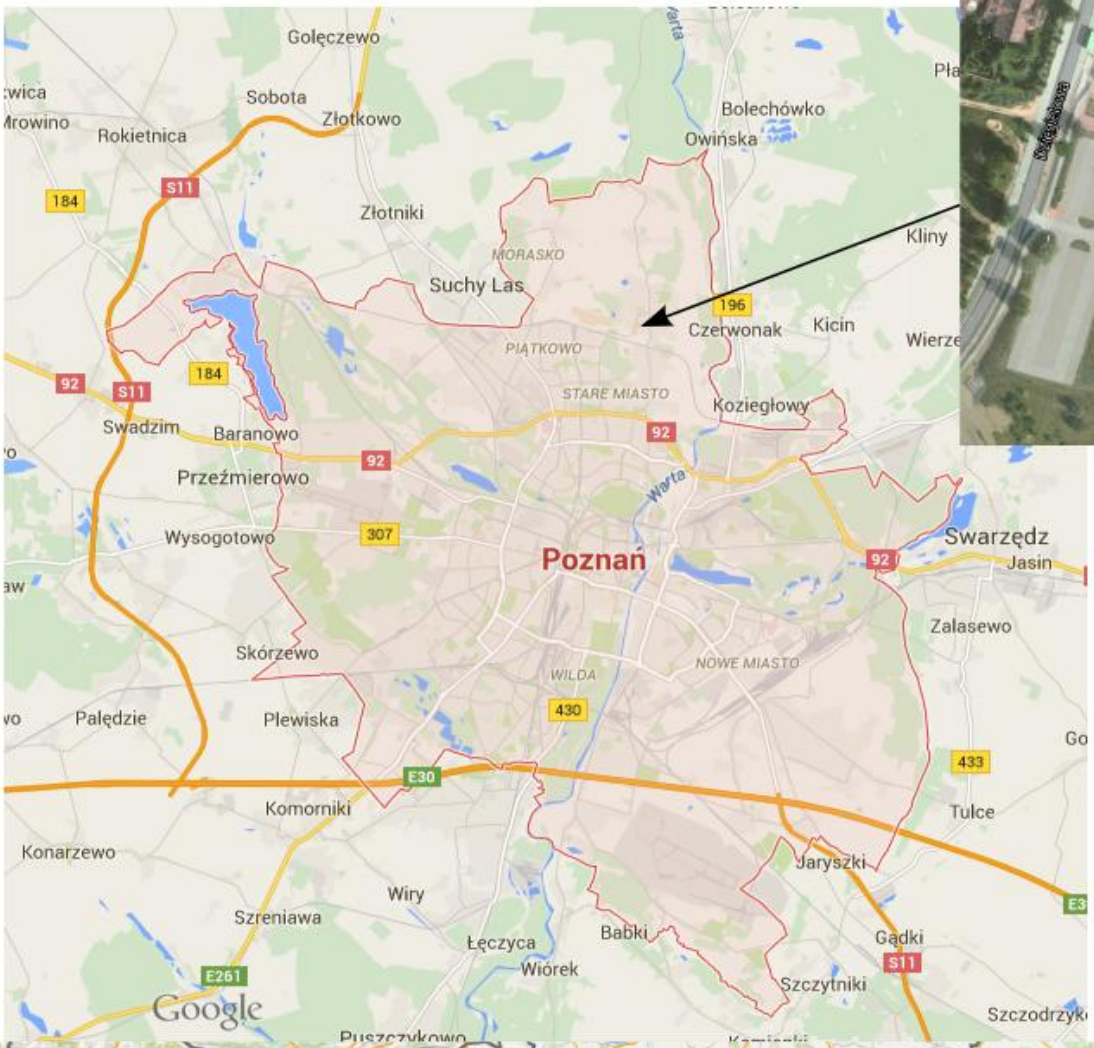
- Objective of the research
- Research area
- Stages of research
- Visualisations
- Conclusions

Objective of the research

- to visualize the dynamics behind the increase in the number of participants of a mass event and their movement on the basis of images obtained from a drone,

- to test a relatively cheap drone and a popular wide-angle camera.

Area of research



Detailed description of the research area

1. Barbecue area
2. Dancing area
3. DJ
4. Promotion area
5. Meteorological station
6. Barbecue
7. Toilets
8. Glider presentation

Drone specification

Drone:

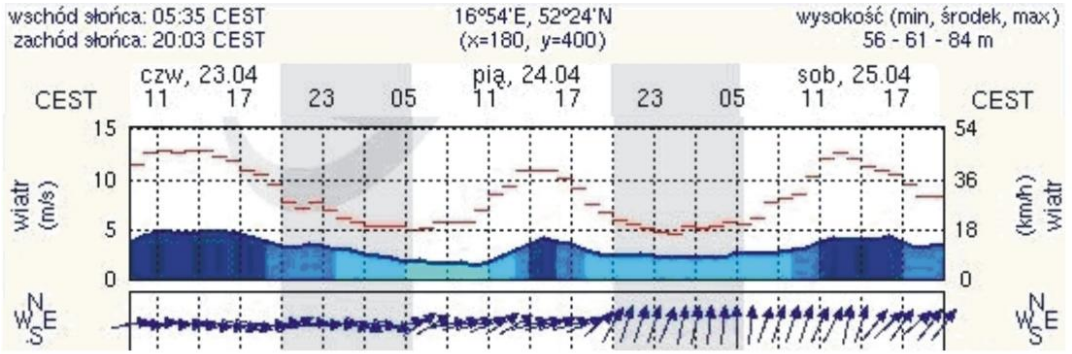
DJI PHANTOM 2

Digital camera:

GoPro Hero 4

Weather conditions during flight missions

- No rain
- West wind

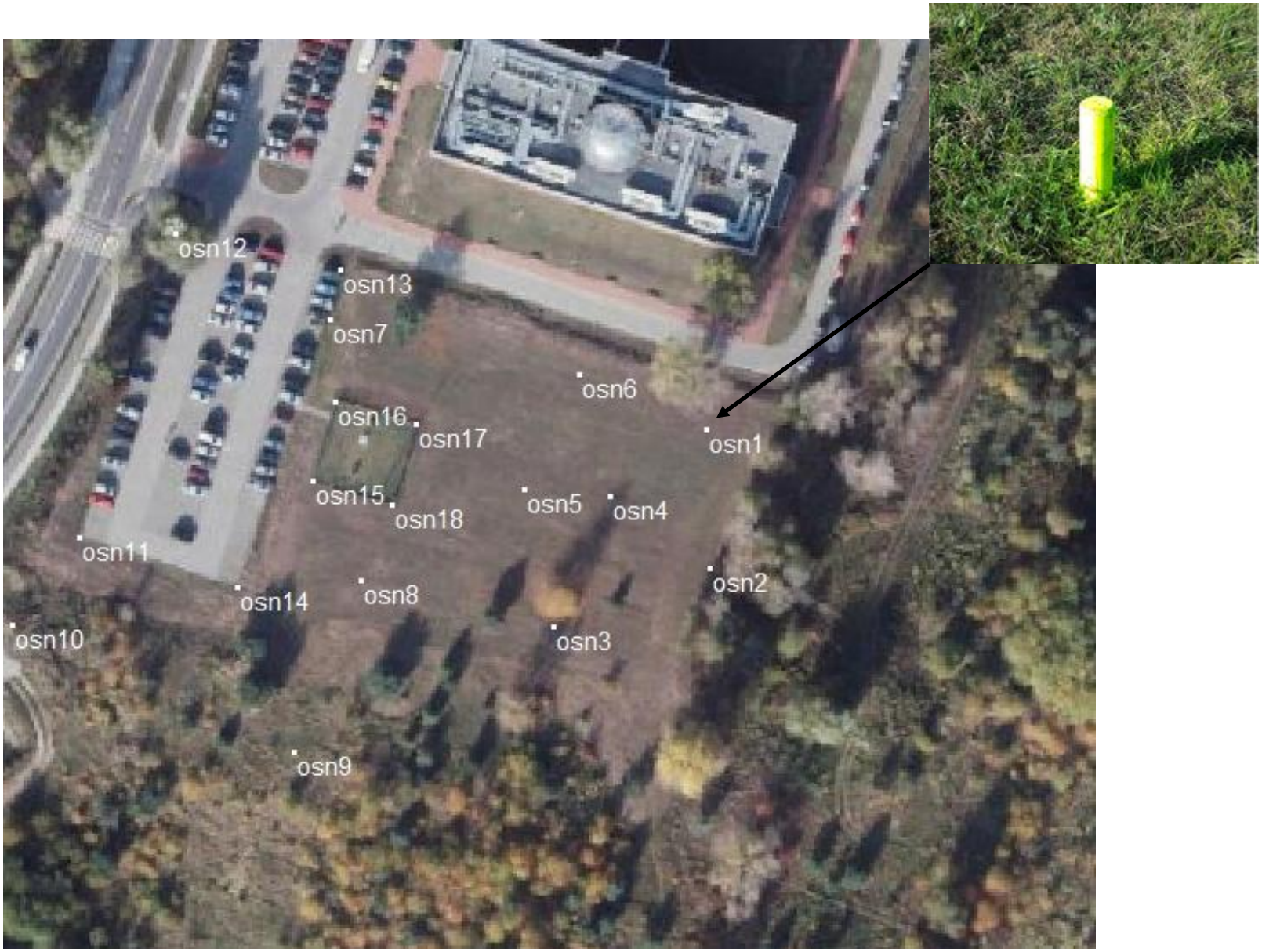


Ground Control Station located south of the site of the event

Stages of research

- preparation
- data acquisition
- data harmonization
- spatial analysis
- cartographic visualisations

Establishment of Ground Control Points

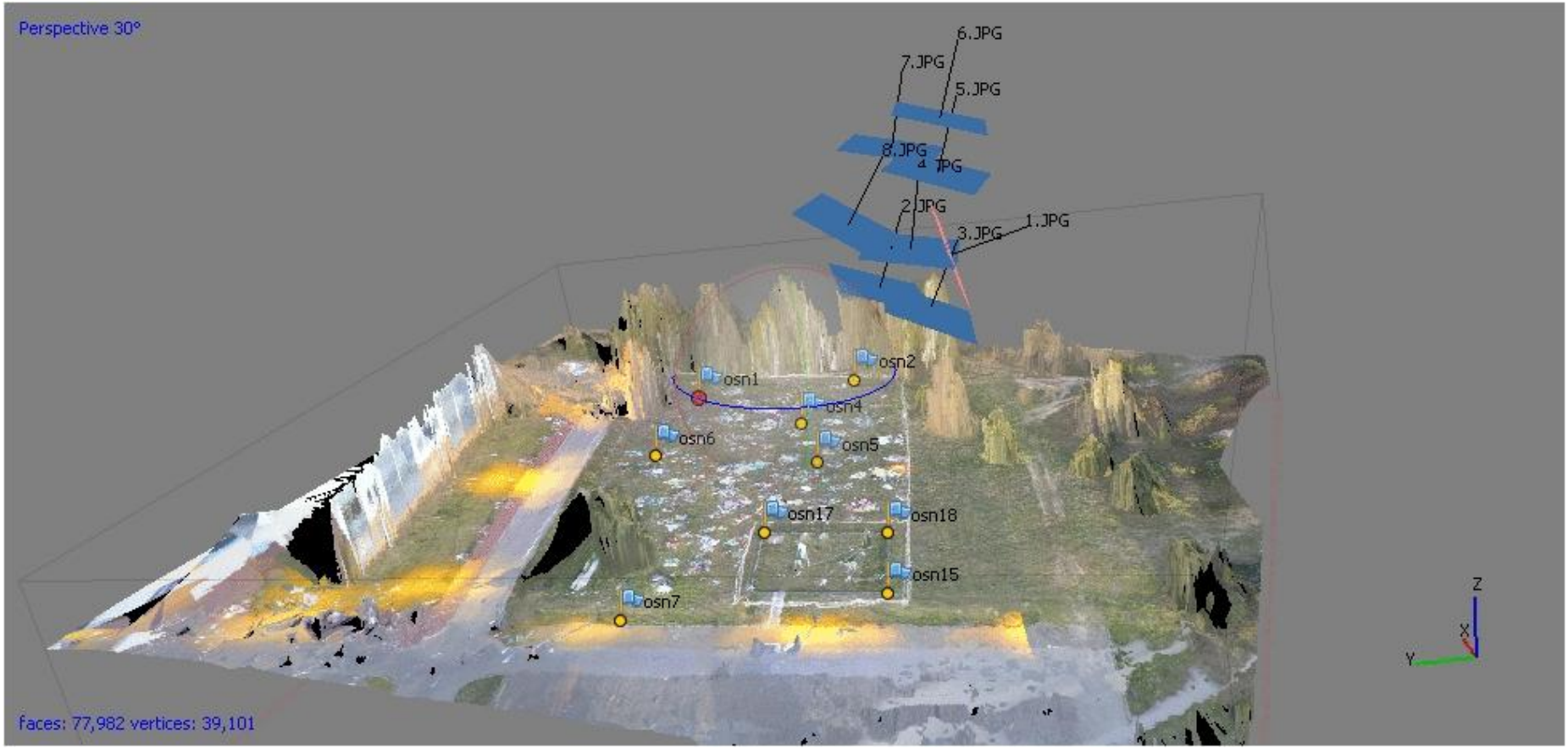


Data acquisition

9 flight missions:

1. 6:12 p.m.
2. 6:34 p.m.
3. 6:54 p.m.
4. 7:15 p.m.
5. 7:33 p.m.
6. 7:49 p.m.
7. 8:12 p.m.
8. 8:33 p.m.
9. 8:54 p.m.

Data acquisition

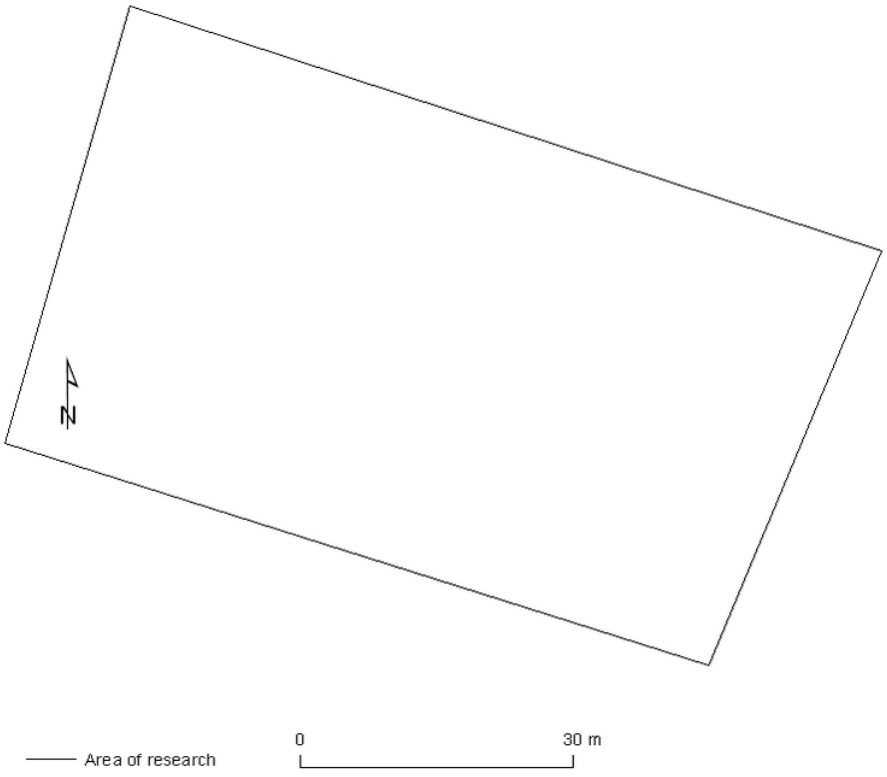


Data harmonization - georeferenced images

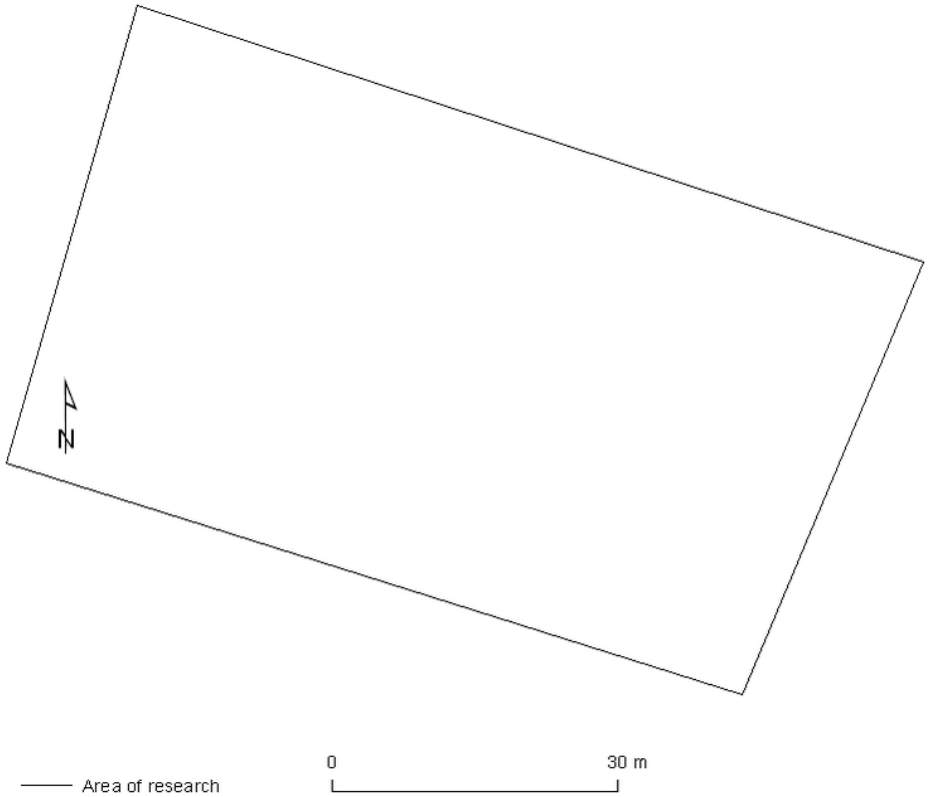
Visualisation of participants – point objects

Animated visualisations

a)

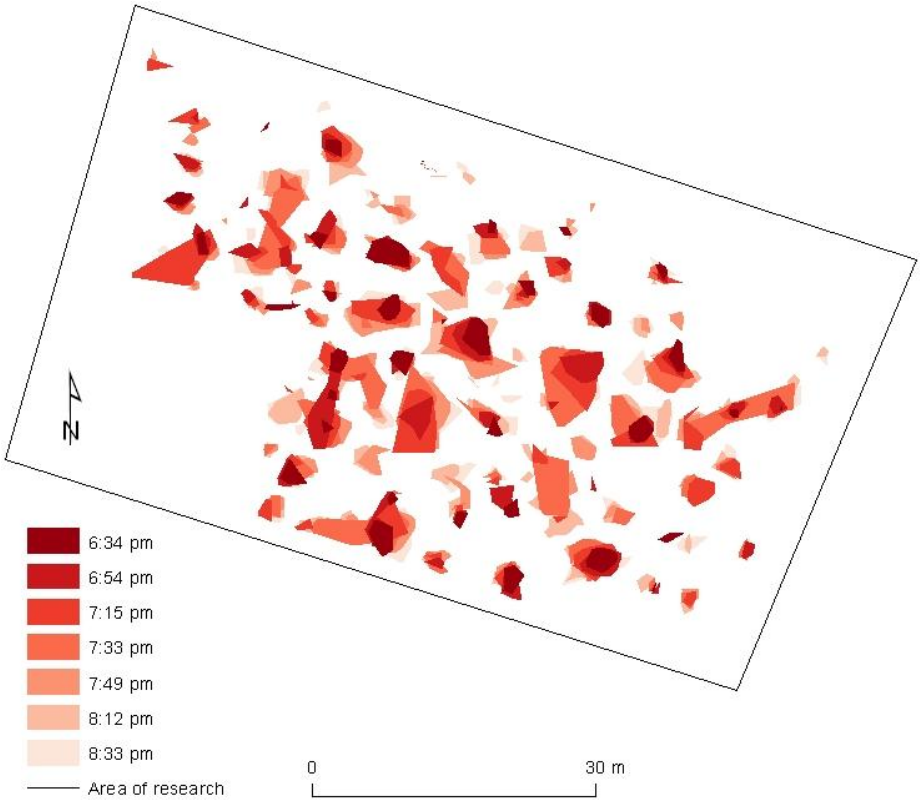


b)



Cartographical Visualisations

a)



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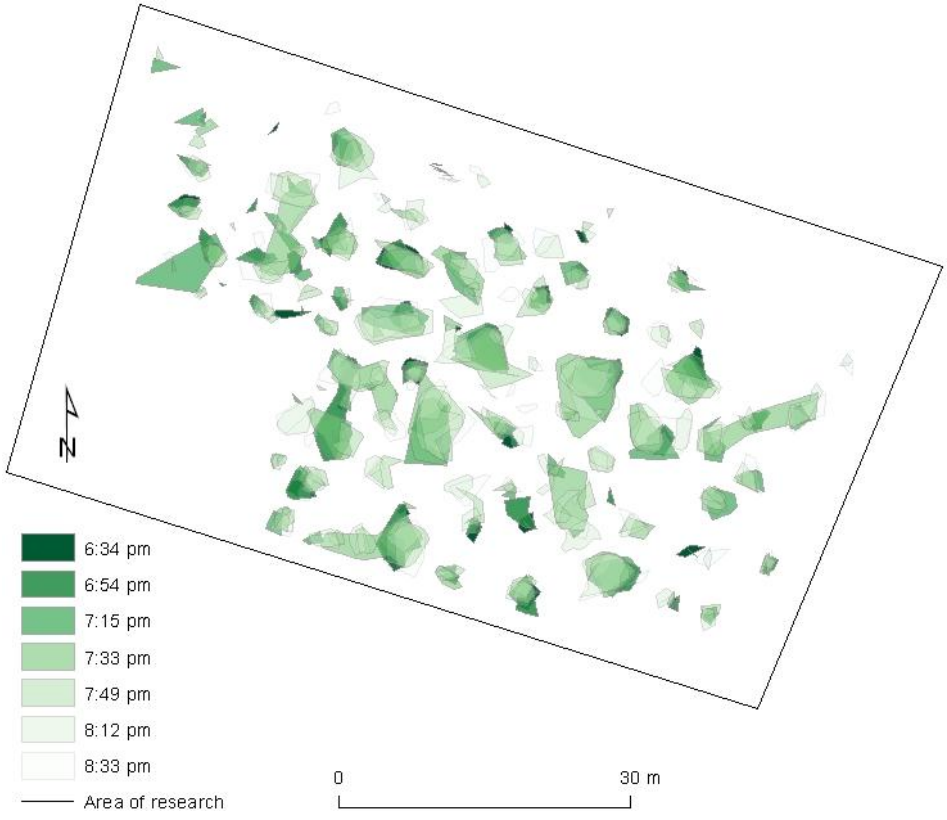

Conclusions

- thanks to their small size and the possibility of mounting digital cameras, drones are good tools to obtain spatial information in the form of aerial images,

- wide-angle lens and oblique aerial images can be used to create cartographic visualisations of mass events

- cartographic visualisations of mass events are helpful in gathering knowledge about spatial distribution of phenomena.

Thank you for your attention!