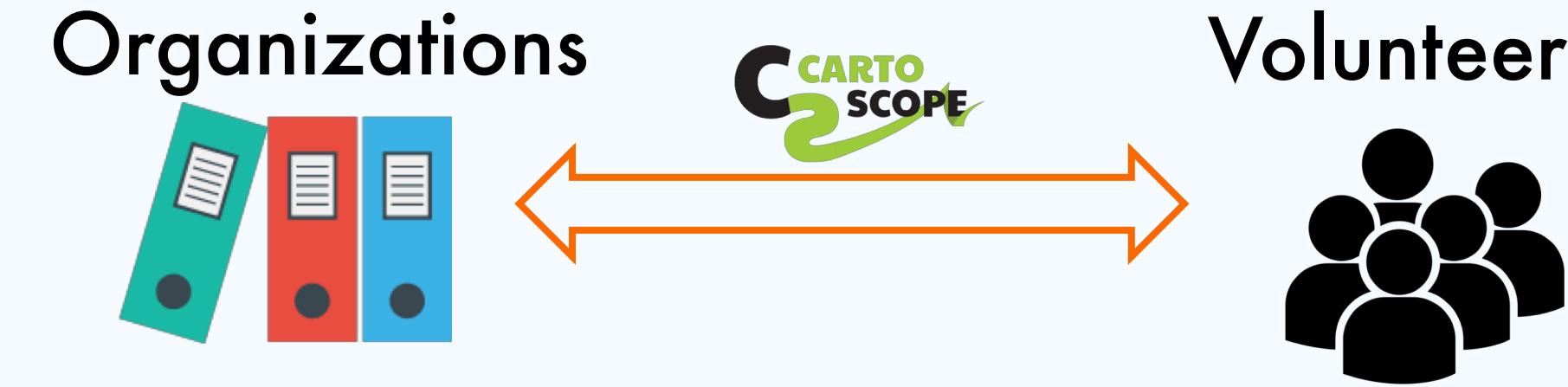


# Cartoscope: A Crowdsourcing Platform for Image Analysis in Disaster Response Applications



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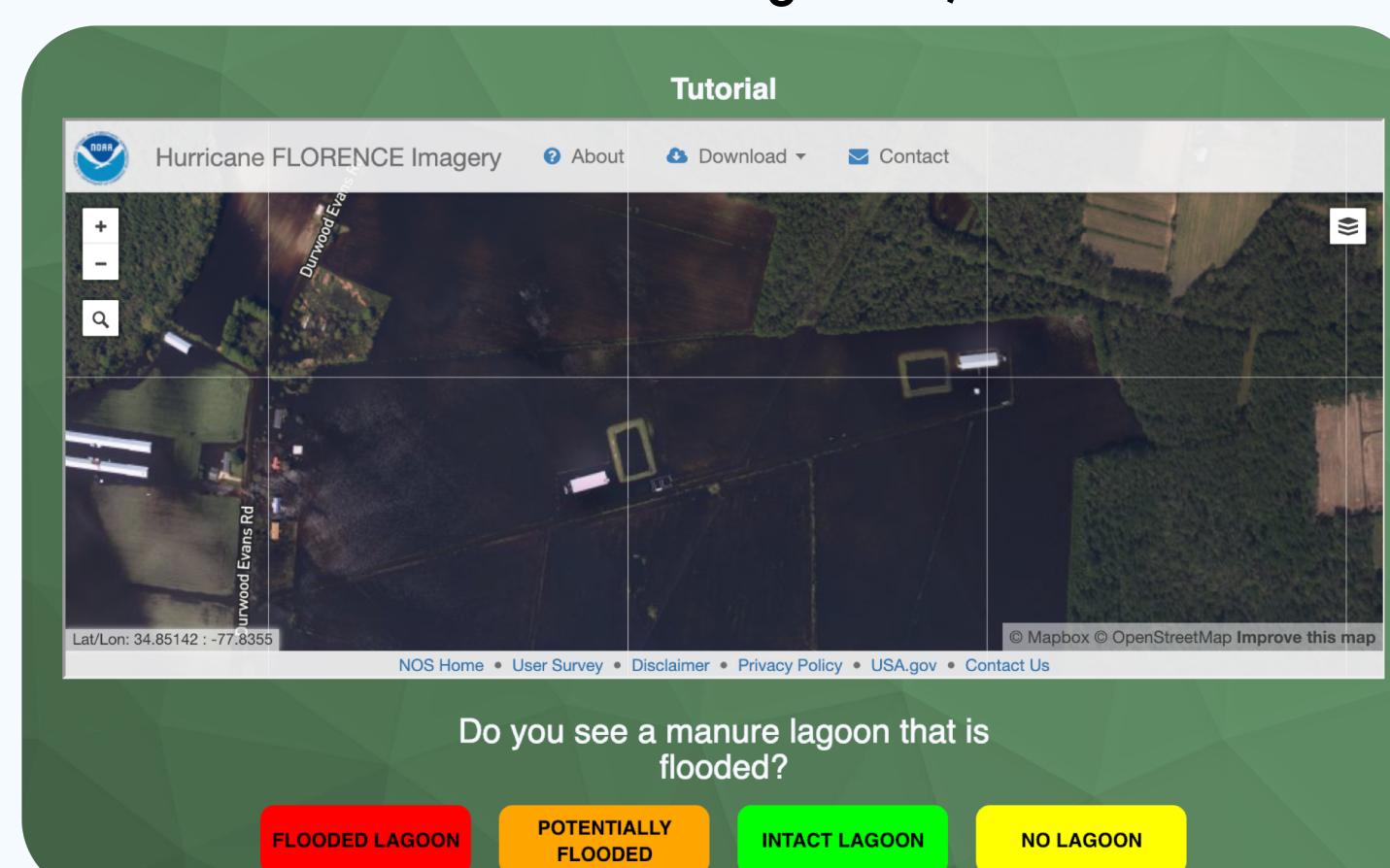
- Collect raw data such as aerial images.
- Struggle to analyze info, attract volunteers and get meaningful results.
- Eager to participate.
- Confounded by complexity of getting involved in ongoing efforts.
- Rapidly lose interest.

**Research Goals**  
**Facilitate** organizations in data collection and sorting using data visualization and real-time results export.

**Introduce dynamic** mechanisms to increase participant interest.

**Create** stronger community bonds and elicit meaningful conversations around events.

**Inputs:** A set of geotagged images and/or a set of points of interest.  
**Outputs:** Assessments for each image and/or each POI.



**Cartoscope Interface Example:** Tutorial for the NGS task type.  
The project is about Tracking Hurricane Florence Flooding of CAFOs Manure Lagoons.

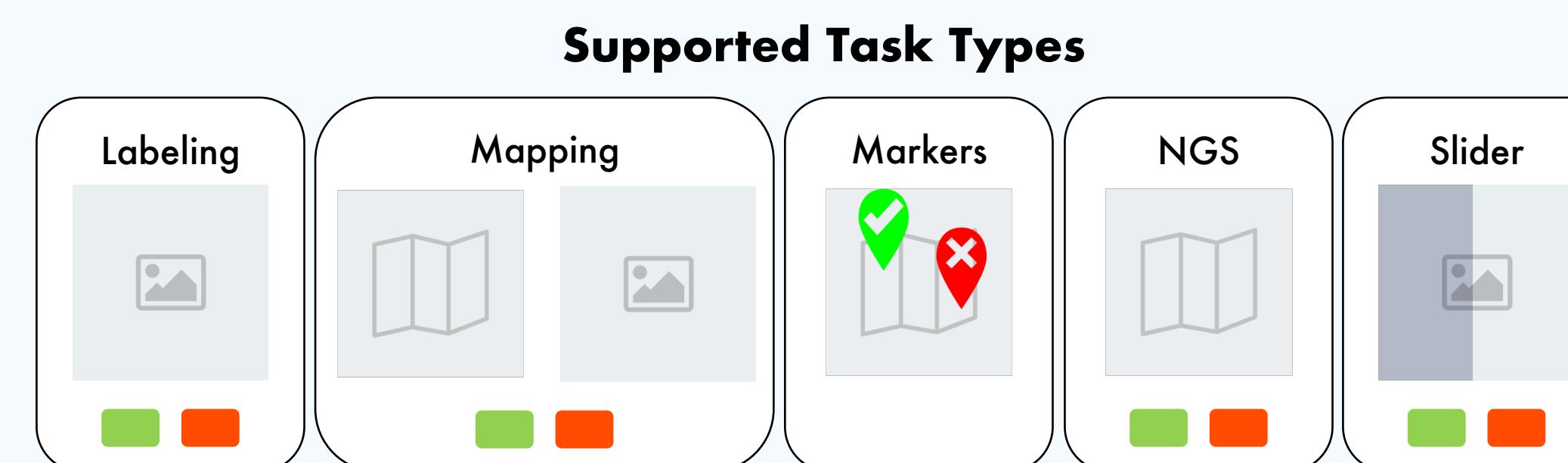
## Research Results & Future Work

- Participants are more likely to complete **more** images when **no** minimum amount of tasks is required of them [1].
- Introducing **variety** by switching task type at different **frequencies** can engage crowdsourcing participants better than uniform subtask types [2].
- Currently developing dynamic mechanisms for producing the most interesting sequences of tasks.



- Main platform for organizations to create and easily share projects, utilizing a variety of customizable task presets.
- Geolocation results are visualized using mapping tools in real-time and exported.

**Demo:** <https://cartosco.pe>

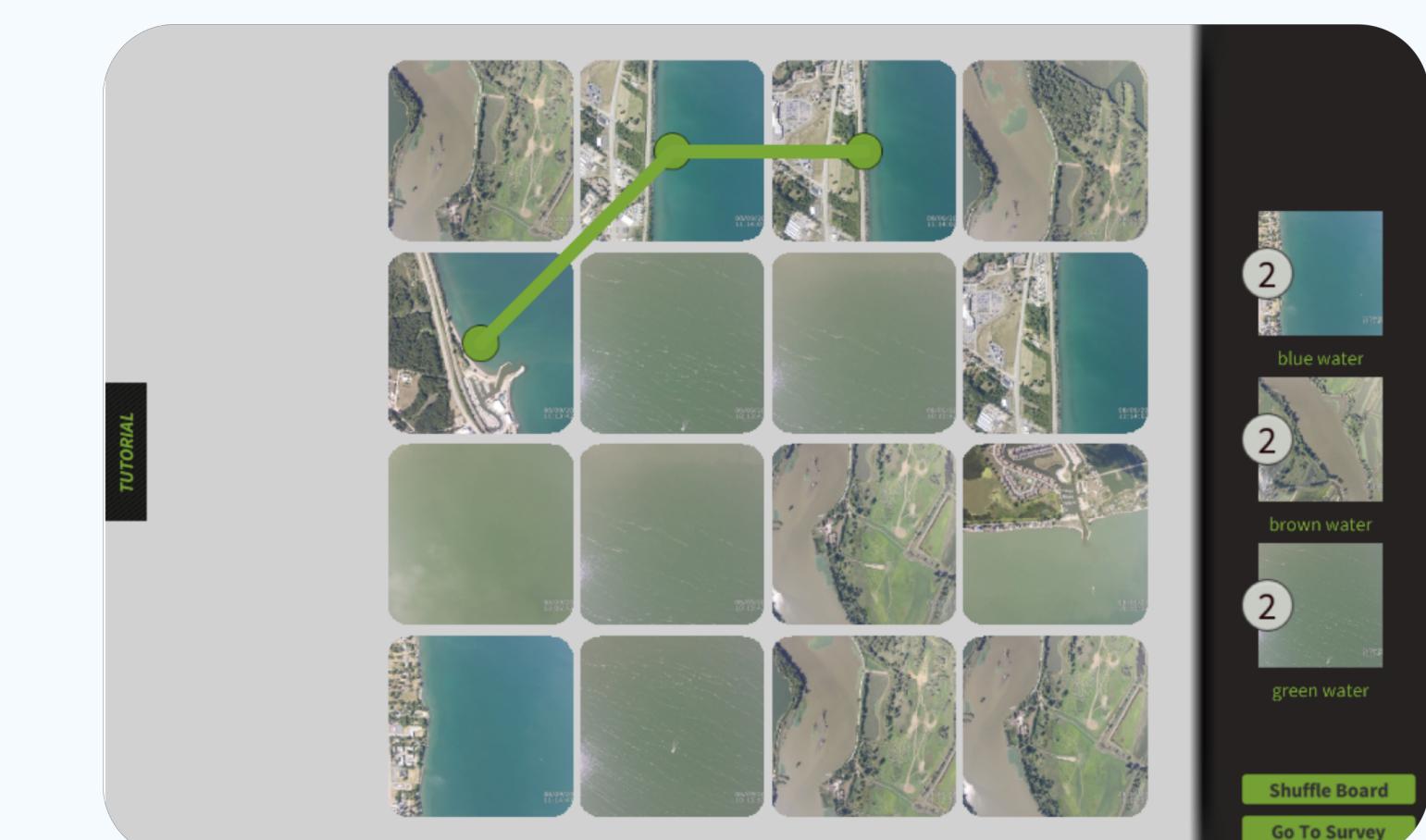


- **Labeling:** Label images by answering questions using provided options.
- **Mapping:** Perform actions on a map (left) and answer questions about the image (right).
- **Markers:** Label mapped Points of Interest by coloring their markers using provided options.
- **NGS:** Answer questions about Points of Interest using mapping tools provided by NOAA's National Geodetic Survey (NGS).
- **Slider:** Label images by comparing before and after versions of the same area.



- Web based online activity for sorting multiple images at the same time.
- Increase throughput while making sorting more engaging.

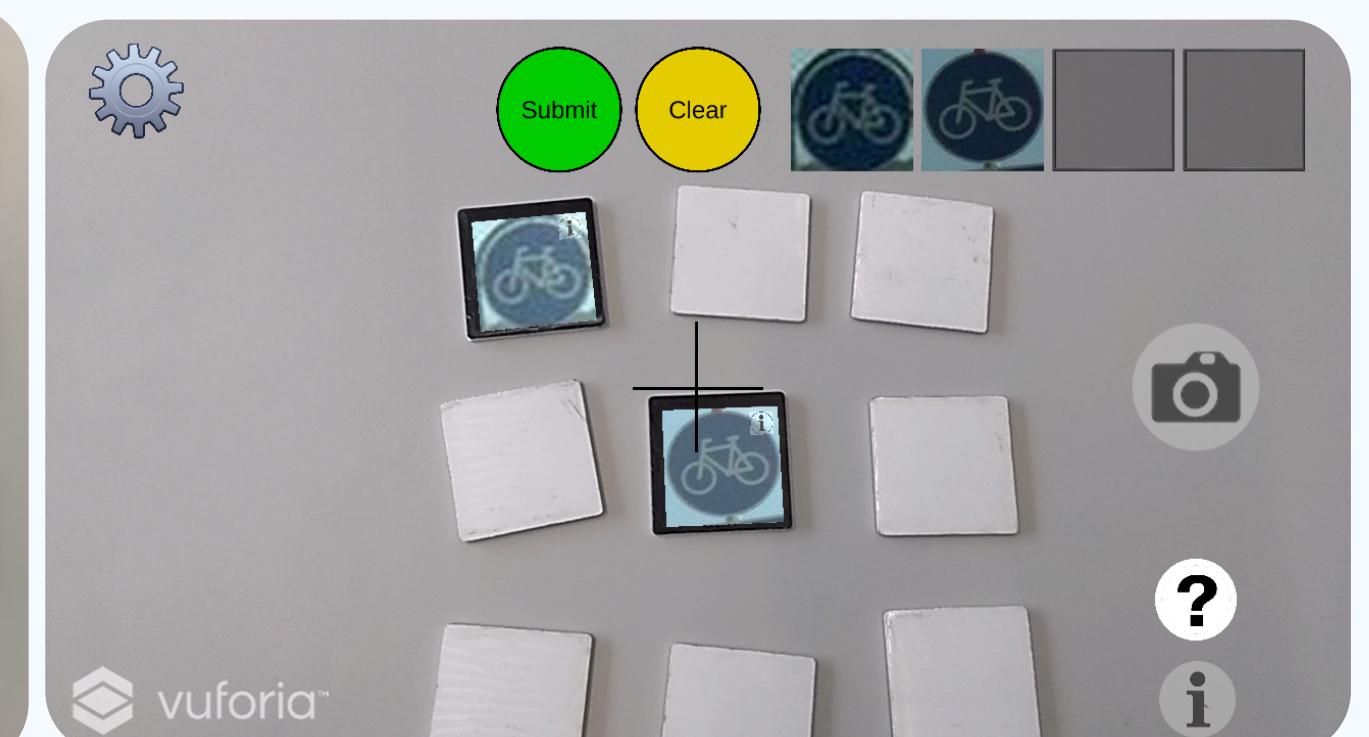
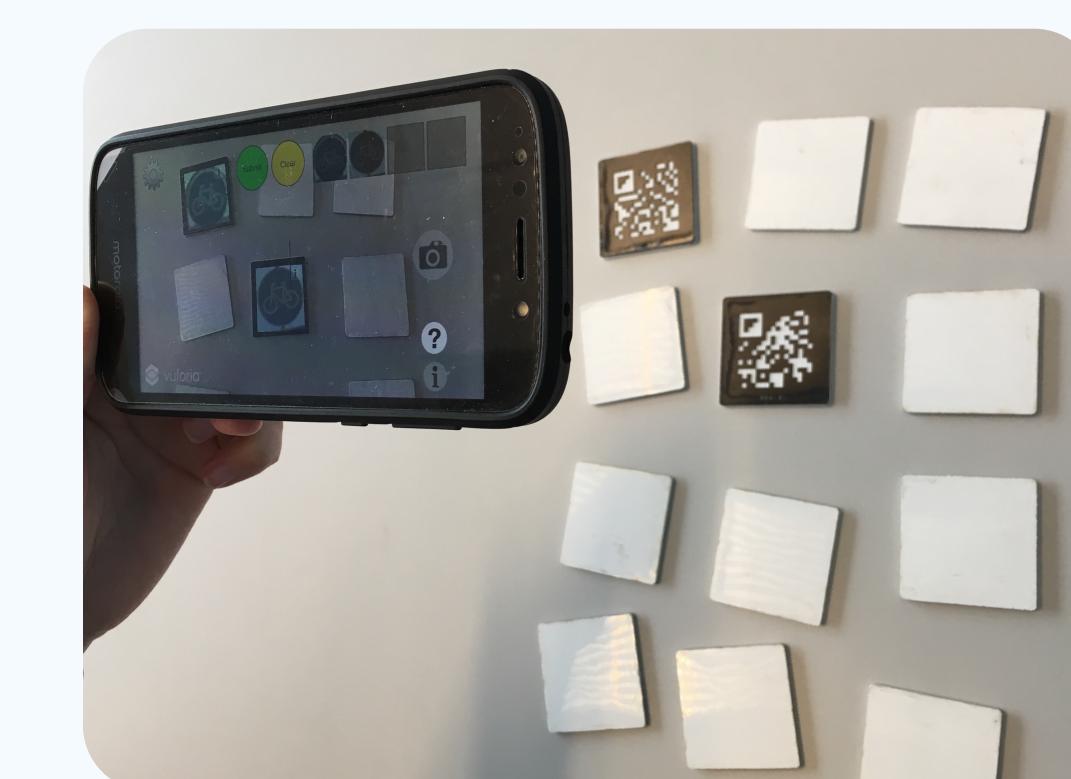
**Demo:** <https://cartosco.pe/Tiles>



**Tile-o-Scope Interface:** Main screen. Users must connect images of the same category in a line to collect images. Project focused on Colorado Floods of 2013.

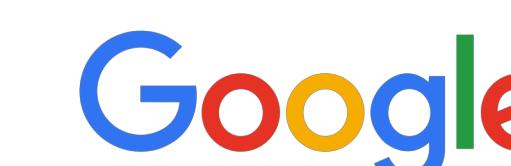


- Augmented reality mobile app for sorting images using physical tiles, participants decide the rules.
- Goal is to elicit in-depth discussions between participants.



**Tile-o-Scope AR Concept:** Activity is performed with physical tiles. Pointing the phone over the tiles reveal images. Users can select 2+ tiles to submit a match and get feedback on whether the images belong to the same category. In the images on the right, participants are playing "Memory".

## Supported by:



## References & Credits

- [1] Sofia Eleni Spatharioti, Rebecca Govoni, Jennifer S. Carrera, Sara Wylie, & Seth Cooper. (2017). A Required Work Payment Scheme for Crowdsourced Disaster Response: Worker Performance and Motivations. In eds Aurélie Montarnal Matthieu Lauras Chihab Hanachi F. B. Tina Comes (Ed.), Proceedings of the 14th International Conference on Information Systems for Crisis Response And Management (pp. 475-488). Albi, France.
- [2] Sofia Eleni Spatharioti, & Seth Cooper. (2017). On Variety, Complexity, and Engagement in Crowdsourced Disaster Response Tasks. In eds Aurélie Montarnal Matthieu Lauras Chihab Hanachi F. B. Tina Comes (Ed.), Proceedings of the 14th International Conference on Information Systems for Crisis Response And Management (pp. 489-498). Albi, France.
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