Foresight DRM: Disaster Mapping Hackathon

Summary of the hackathon event hosted by GGIS at the University of the West Indies Open Campus Bahamas, April 21-22, 2023

In April 2023 GGIS, in partnership with the Rights Lab and Rescue Global, hosted a hackathon event as part of a wider study addressing the social and economic impacts of climate change and hazards on communities in the Bahamas. Here we provide a summary of the hackathon event based on the power of geospatial data, and how it can be used to support in decision making in the event of hazards such as hurricanes. The event itself focused specifically on the application of data to support response in the Bahamas.

About the challenge

The Caribbean as a region has the challenge of dealing with tropical storms and hurricanes, which largely occur between April and November each year, commonly referred to as the hurricane season. Due to the impact of climate change on sea temperatures, the frequency and intensity of these storms seem to be increasing. This has an impact on lives and livelihood when these storms make landfall in the Caribbean or the Americas.

The aim of this hackathon was to introduce the participants to the power of geospatial data and how it can be leveraged to empower decision making in the event of a natural hazards such as a hurricane.

Participants were provided with data by the team related to a wider study of the effects of Hurricane Dorian, which hit the Bahamian islands of Abaco and Grand Bahama in September 2019. They could also supplement these data with additional sources to develop a tool that would support in the response of future hazard events.

The event itself was open to citizens globally with a specific call made to those residing in the Caribbean to take part.

Participants were asked to generate ideas and implementations for the application of varied geo-information sources for hazard mapping and response linked to six main categories: human and social, environmental, agricultural, oceans, building and infrastructure, and a broader open category.

About the team

This hackathon is part of a two-year project (May 2021 - April 2023) aimed at isolating the impact of intersecting social, economic, and ecological crises on human issues such as forced or illegal labour in The Bahamas. It is funded by the Templeton World Charity Foundation. The project partners are:

- The Rights Lab, University of Nottingham
- Rescue Global Management Services
- Global Geo-Intelligence Solutions (GGIS), with GGIS taking the lead in organising this hackathon.

Winners

Project Ignite – The Grand Bahama Bushfire 'N Tingz
Giatri Lalla

Using GeoAI and predictive analytics against climate-change induced bushfires in the Bahamas.

EmergencyRoute
Parinda Pannoon, Yanika Dontong, and Lisah Ligono

Pre-, during- and post-hazard tracker to support emergency services and evacuations.

SoilSafe
Hassan Memon

Reducing the impact of disasters in the Bahamas on grain of soil at a time.

DISASTER MAPPING HACKATHON

🏅 First Place

Project Ignite – The Grand Bahama Bushfire 'N Tingz – *Giatri Lalla*

- Development of a tool to both track and predict the worsening impact of bushfires in the Bahamas following the effects of Hurricane Dorian in 2019.

- Combines a range of fire hotspot mapping datasets from satellite sensors with on-the-ground data linked to fire safety (e.g., hydrants and fire stations).

- Provides the ability for community updates, enabling real-time fire mapping capabilities through an interactive dashboard depicting bushfire presence over time through intuitive crowd sourcing of data.

- Prediction capabilities mean more insight into future risks can be identified for preventative action to be undertaken.

- You can find out more about the project here.
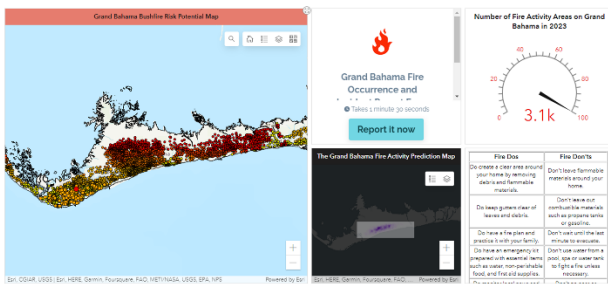
🥈 Second Place

EmergencyRoute – *Parinda Pannoon, Yanika Dontong, and Lisah Ligono*

- Web-based application for emergency responders. Providing both pre-event, during-event, and post-event mapping for additional planning and response.

- Tracking of hurricane events are embedded in the application and can be used to track storm events.

- Includes a mechanism for providing routes to shelters during a hurricane event by mapping areas of flooding risk that can be used by emergency responders based on population density and route mapping combined with land-cover risk of flooding.
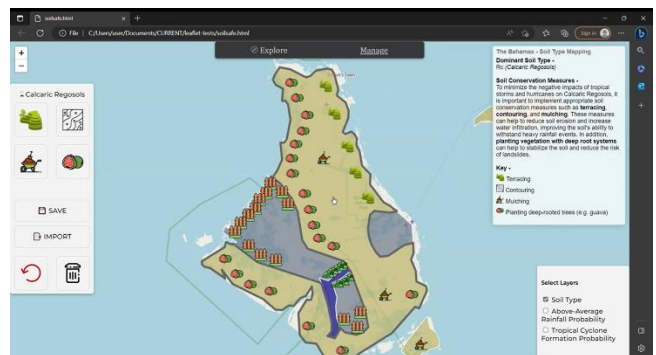
- Future mapping included related to sea-level rise and climate models to provide advanced warnings of potential future damaging storm fronts.

- You can find out more about the project here.
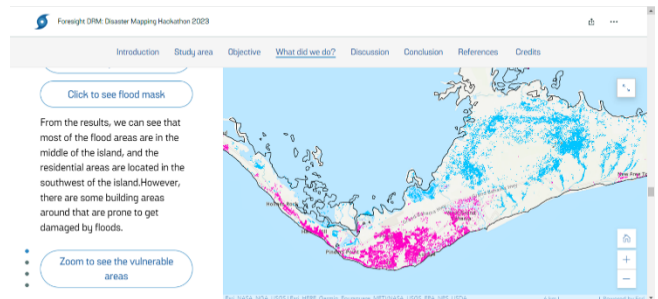
🏅 Third Place

SoilSafe – *Hassan Memon*

- Mapping of dominant soil cover across the Bahamas to identify risks of erosion (with the potential for landslides in those high-risk areas) resulting from hurricanes and rainfall events.

- You can explore the different soil types in order to capture data to assess the vulnerabilities of varying soil compositions across the Bahamas.

- Enables you to manage soil within the application by considering conservation measures and enabling planning scenarios in order to support climate change mitigation.

- You can find out more about this project here.

Hackathon Briefing written by Dr Ropo Ogundipe (GGIS) and Dr Bethany Jackson (Rights Lab)