2024 Statewide Cooperative Hack-A-Thon:

Mapping Community Resilience

"Coding requires 360 degrees of panoramic view, that requires more than coders in order to see, understand, capture, and partially address the social, technical and ethical considerations."

Dr. Brandeis Marshall

In April of 2024, "FEMA announced that federal disaster assistance has been made available to the state of Oregon to supplement recovery efforts in the areas affected by the severe storms, straight-line winds, landslides and mudslides from Jan. 10-22, 2024."(https://www.fema.gov/press-release/20240415/president-joseph-r-biden-jr-approves-major-disaster-declaration-oregon)

However, what many may not be aware of is that from 2011-2021, the state of Oregon has declared a natural disaster in 30 of its 36 counties. This data is laid bare in the *2021 Atlas of Disaster Report*, Rebuild by Design, wherein they noted that Oregon holds the distinction of having had 12 natural disasters over the aforementioned time period. In addition to discussing natural disasters, the report looks at the ripple effects such as an increase in social vulnerability index, potential energy disruptions, and funding streams to create a compounded risk score. Finally, it lays out comprehensive recommendations for how communities can get ahead of the curve to some extent by using a holistic approach to emergency management.

Unfortunately, emergency management planning faces challenges when trying to assess communal need when there is an intersection of natural disasters, an uptick in violence, and displacement and/or houselessness. How can we predict (to some extent) where there will be increased need for resources if we are unaware of communal patterns of use. Further, how do our emergency preparedness plans consider the ability at both the individual and communal levels to secure emergency rations? Lastly, have we embedded in our planning areas that have high concentrations of substandard housing (making sheltering in place untenable), low access to green space (making heat waves more deadly), or no access to clean water?

In many countries there has been a recognition that there is a need for coordinated efforts in collaboration with communities when assessing overall risk and the mapping resources. The State of Oregon Research Academy is committed to building bridges between state and local government and the people of Oregon we serve and are hoping that this event will be both an opportunity for both communal voice and cross agency collaboration to begin mapping the gaps between what we know is

needed during an emergency to keep everyone as safe as possible, and what our communities can effectively weather.

Purpose:

Community Engagement and Support

- By learning if and where there are gaps between the Oregon Disaster Planning efforts and Community ability to implement – specifically: shelter in place, access to medical, and supply chain challenges that occur during a natural disaster.
- By identifying other evacuation centers besides those identified by the Office of Emergency Management.
- By engaging Oregon communities affected by at least one of the 12 disaster impacted areas from 2010-2023 and allowing them an opportunity to provide qualitative data on their region and how they have navigated said disasters.

State Agency and/or Program Staff Skill and Response Support

- There is an identified need for workers to receive training in research, data analysis, and technology, in particular the ability to navigate dashboards and data maps.
- Natural disasters often cause secondary hazards such as non-potable water, housing displacement, and the potential for increased violence. The more aware agencies are of vulnerable areas, the better able they will be at creating contingency plans.

Learning Objectives:

Community participants, State of Oregon staff, and organization volunteers will increase their knowledge on:

- Good Governance of Community data:
    - Understanding what and why community determines 'authoritative data' and how this drives datasets to be used or set aside.
    - How community collects and sores data.
    - How to create an inclusive data governance process to ensure that community data AND voice/choice, is included in all phases of the data lifecycle.
    - Understanding how missing data is addressed and where community needs access and/or supports in filling the gaps.
- How to use open-source geospatial tools for data collection and mapping
- How to access and use open map data for disaster preparedness and response
- Enhanced map literacy skills and increase one's ability to navigate and interpret interactive maps to be able to see the attributes associated with each mapped feature.

Benefits for Communities and State Agencies:

- Updated and detailed hazard maps by disaster type and/or geographic region
- State government employees and stakeholders will feel more confident in using digital open mapping tools
- Teams will generate high-quality geospatial data and maps that can support anticipatory action initiatives such as contingency planning. For example, data collected could be used to identify

the location of potential evacuation centers, communal resource hubs, and potential gaps in needs vs. available services in an emergency for vulnerable areas and populations

- The program is to identify other evacuation centers besides those identified by the partner organizations. It is of uttermost importance to engage the local people affected by the disasters in question. They have every detail about everything that goes on within their area, which is very important in disaster response.
- Creating a tech bridge between state agencies and potential future state of Oregon employees.

Looking Forward

In conclusion, the hope in providing granular open geospatial data and maps for the creation of multi-hazard contingency plans, the SORA Map-A-Thon hopes to demonstrate how crucial communal voice is in effective emergency management, disaster planning and harm mitigation efforts.

Platform (tentative): DemocracyLab

Proposed Timeline:

9 Months Pre-Event

Duration / Agenda:

- Set time (12 hours, 24 hours, or a weekend): **12 hours**
- Decide on a tentative date: **February 14th or the 21st – 2025**
- Outline agenda

Participant recruitment:

- Identify community partners that understand communal resource deficiencies who would benefit from support and access to experts on disaster planning and guidance on how to use open data for disaster planning.
- Identify key individuals in industry, universities and public health communities that could benefit from the having more working knowledge of community needs
- Identify stakeholders with resources that can support the recruitment of individuals that would be interested in and would benefit from participating.
- Host a SORA kickoff/promotion event and send out a ‘hold the date’ pre-registration emails

Stakeholder involvement:

- Begin discussions with identified key individuals as well as developers (i.e., ESRI)
- Determine who are the maintainers of similar resources about their interest
- Ask about what resources can be provided (ex., time, funds, prizes, etc.).

Data Sources:

- Begin to discuss identified Open Data to be used with stakeholders
- Include on the pre-registration email questions for participants about data sources they use.

6 Months Pre-Event

Participant recruitment:

- Invitation of potential participants through previously identified key individuals.
- Registration through an online form that covers their contact details, open-source handle, preferred programming languages and interests in the resource.
- Selection of participants based on interests.

Ideation:

- Create Stakeholder Teams
- Divide invitees through the registration forms into teams
- Have stakeholder and team lead begin building their datasets for the event.

Continuity planning (*could this be an opportunity to learn new skills/train/promote staff?***):**

- Invite selected participants and key individuals to common communication channel.
- Create an information hub to spread information about the hackathon and the resource.

Mentoring:

- Identification and invitation of individuals who are familiar with the resource and relevant technologies to serve as mentors.
- Determine and assign dedicated mentors to individual teams.

3 Months Pre-Event

Specialized preparation:

- Develop documentation for the resource including sample code for selected submitted through the registration form.
- Sharing of documentation through communication channel.
- Hold a pre-event practice session for mentors and team leads

Agenda:

- Add structured socializing and networking slots to agenda
- Decide when to have a post-event Q&A
- Create a 'Lessons Learned' survey to be sent out after event but prior to post-event Q&A

Ideation:

- Plan for an ideation session at the beginning of the event.
- Create card-based brainstorming with questions focusing on the usability and usefulness of the resource (this is to see if the natural disaster process and/or data we think is useful is perceived the same way by the community effected).

Team formation:

- Review team makeup and make sure that members are from different institutions/agencies.
- If possible, place at least two community members from the same community and/or geographic region on each team.
- Send out information to teams and include the 'save the date' for the pre-hackathon webinar

1 Month Pre-Event

Specialized preparation:

- Pre-hackathon webinar to introduce participants to the capabilities and usage of the resource.
- Allow participants to connect to the resource and run code samples and/or mapping simulations.
- Organizers will integrate ideas that were submitted through the registration form and pre-structure submitted brainstorming cards into thematic clusters that can be the basis for hackathon projects.

Mentoring:

- Introduce of mentors and their area of expertise at the webinar.

Map-Hack-A-Thon!!!

Agenda:

1. Welcoming words by the organizers
2. Presentation:
    - Hackathon agenda
    - Expected final submission (source code and presentation slides)
    - Communication channels and information hub.
    - Housekeeping
3. Introduce supporting individuals and institutions.
4. Introduce mentors, including their area of expertise and their role during the hackathon.
5. Call on participants to introduce themselves.
6. Structured Break:
    - Participants to socialize and network
    - Give submitted brainstorming cards to teams
7. Assemble Team Rooms
    - Mentors join teams and support them to connect to the resource, scope their project and help with technical issues.
    - Mentors focus on their teams but also support others if necessary.
8. Discussion of pre-structured clusters and adjustment based on participant input.
9. Checkpoint - adjust plans to ensure that teams are roughly of equal size.
10. Lunch
11. Share Out
    - teams share their progress, problems they ran into and their plans for the rest of the day

12. Social game (TBD)
13. Closing
    - Team Presentations
    - Discussions about the content of the presented projects and problems the teams encountered during the hackathon.
    - Instructions given for how teams will share presentations and code repositories through communications channel.
    - Closing speech and end of the hackathon

Post Hack-A-Thon

Continuity planning:

- Organizers distribute summary of the event directly after the hackathon
- Regular engagement and updates with community participants through communications channel.

Stakeholder involvement:

- Encourage stakeholders to share publications and other outcomes they produce using the resources garnered from hackathon participants, workgroups, and through communications channel.

Mentoring Resources:

How to Effectively Mentor at Hackathons - HackTheHub

A Mentor's Perspective: Guiding the path to hackathon success - TAIKAI

Data:

Oregon Department of Emergency Management

Oregon Statewide Flood Hazard Database - FEMA Flood Insurance Studies - 2015

Oregon Statewide Flood Hazard Database - Other Flood Studies - 2015

Past Storm Events in Lane, Oregon

Geospatial Management Office – US Department of Homeland Security

Disaster Planning:

Disaster Resilience – Hazard Mitigation

5 Disaster Resilience Challenges Facing State and Federal Officials

The Calm Before the Storm: Disaster Planning and Rural Resilience

Resources:

Oregon's Disasters

A Community Approach to Disaster Preparedness and Response

Multnomah County – Community Resources for Hazard Mitigation

NOAA U.S. Billion-Dollar Weather & Climate Disasters 1980-2024

Rebuild By Design – Atlas of Disaster

Rebuild By Design – Atlas of Disaster: Oregon

State of Oregon Emergency Management Plan

The Quest to Support Community Resilience in the Face of Coastal Hazards and Natural Disasters

UO Hazard Lab

USDA Designates 18 Oregon Counties as Primary Natural Disaster Areas

Tools:

DataViz

ESRI – Disaster Response Program Software

RAWGraphs

OregonGEOHub

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