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River Disaster Management Application for Collaborative Visualization

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Immersive Visualization/Analytics

Interactive environments that can immerse the user in data and provide tools for data analytics

- Developing applications to investigate the usability of new immersive visualization technologies for disaster management
- Explore combinations of 2D and 3D representations of data
- Investigate the broader value of immersive visualization for different domains

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Disaster Management Cycle

- Mitigation – Preemptive actions to reduce severity, consequences, and risks to people
- Preparedness – range of critical tasks and activities necessary to build, sustain and to improve operational capability to prevent, protect against, respond to, and recover from disaster
- Response – immediate/ongoing activities and systems to manage the effects of an incident and help reach a stable status for the entity
- Recovery – programs designed to return conditions to a level that is acceptable to the entity. Assisting victims and restore institutions. Rebuilding.

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River Disaster Management

- Based on a public website from Ministry of Land, Infrastructure and Transport, Japan
- >15,000 different sensors
  - Rainfall, river height, snow, shoreline, water quality, dam
- Data production varies
  - 10min to every hour
- Some sensors go offline/online

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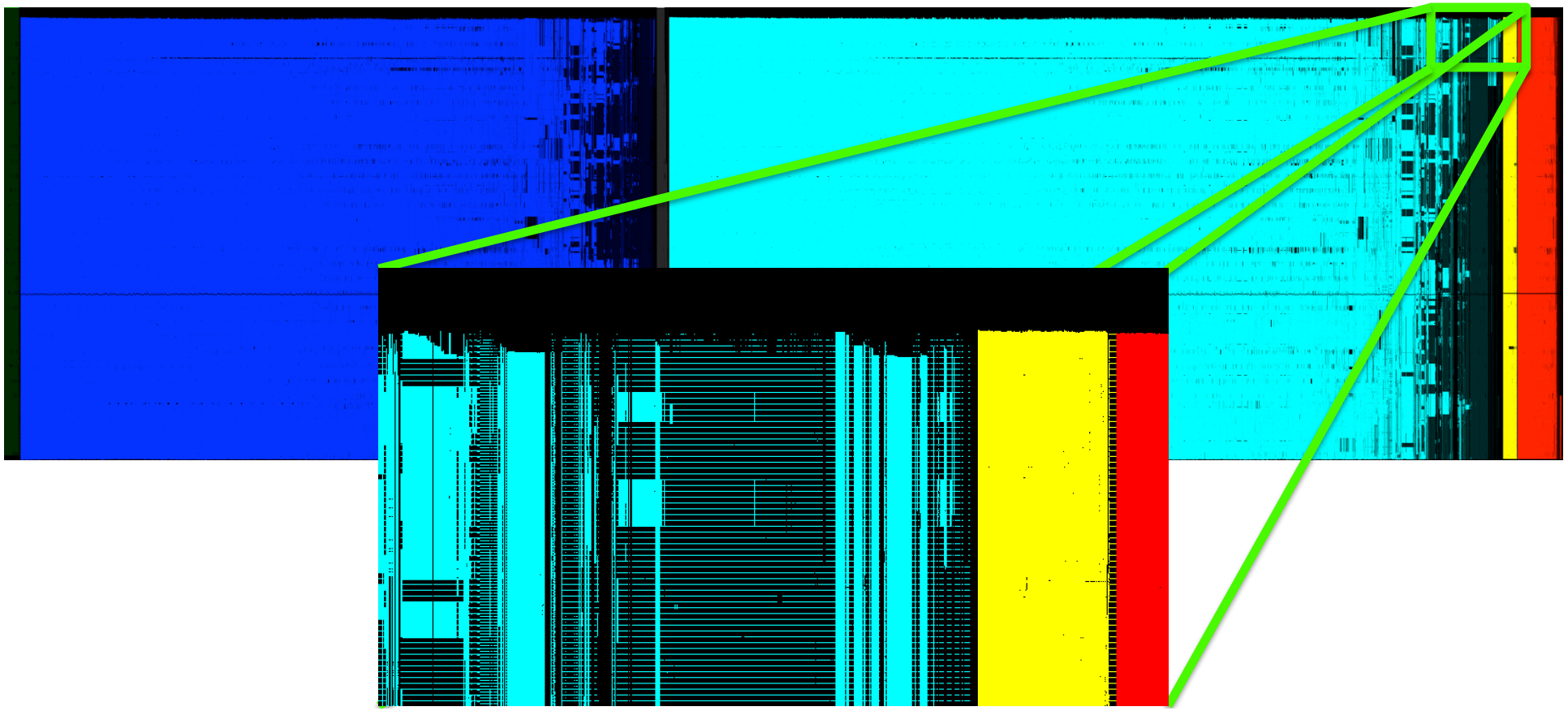
What Data Did We Have?

- Web crawler collected data for a month
  - Sensors (abcissa) and 10 min time intervals (ordinate)



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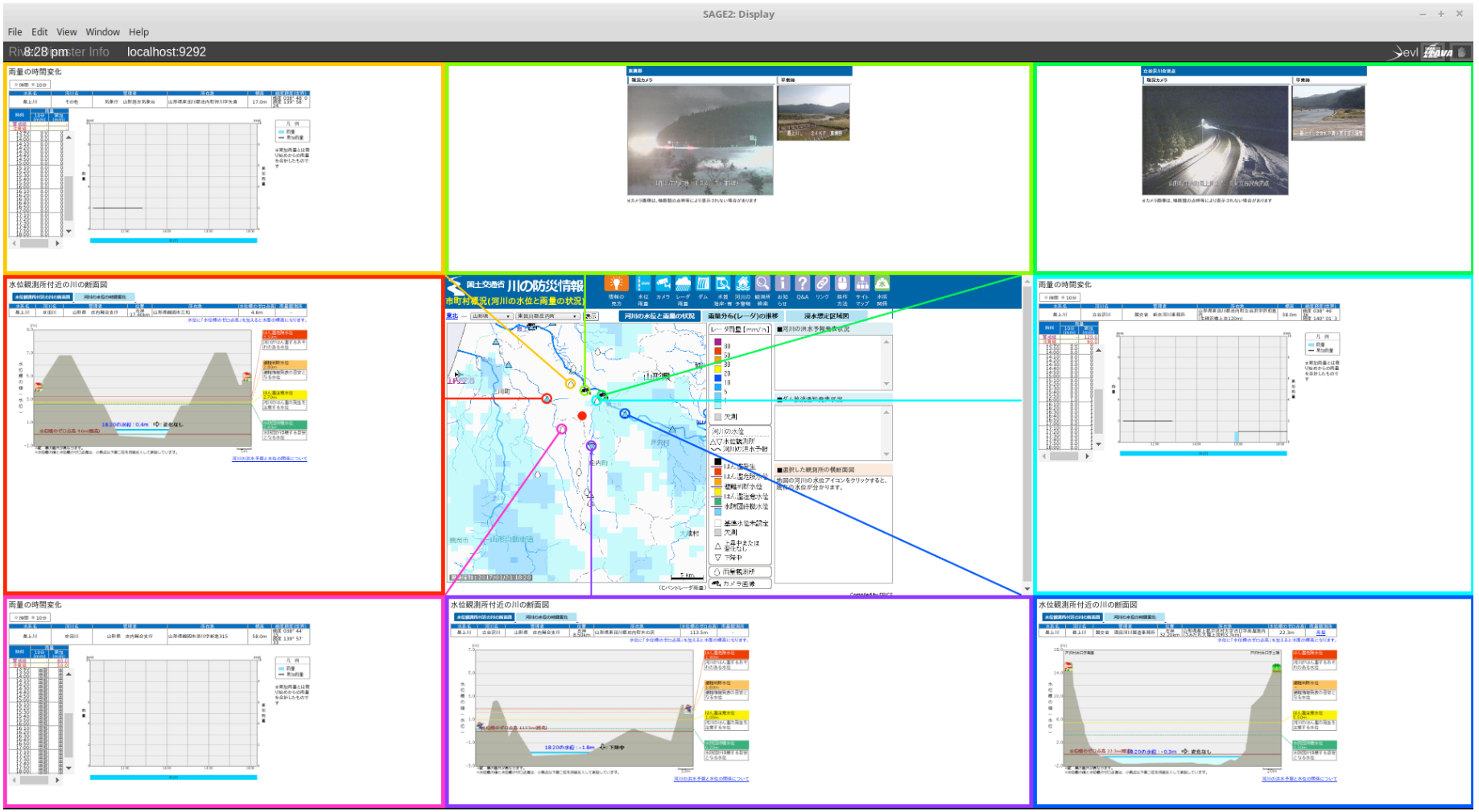
2D Representation SAGE2 Application



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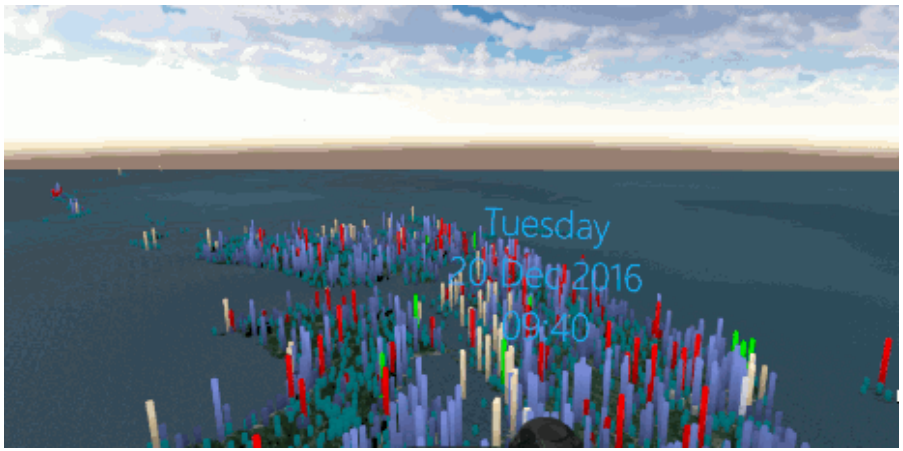
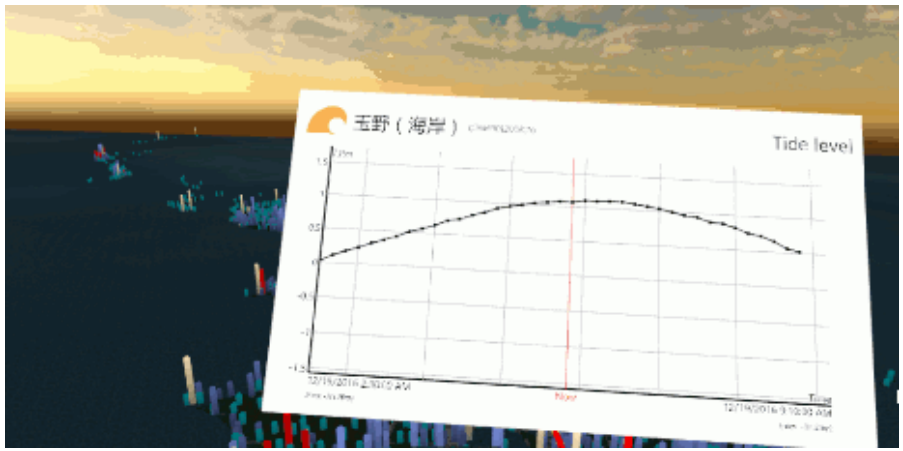
3D Representation VR Application





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Demonstration

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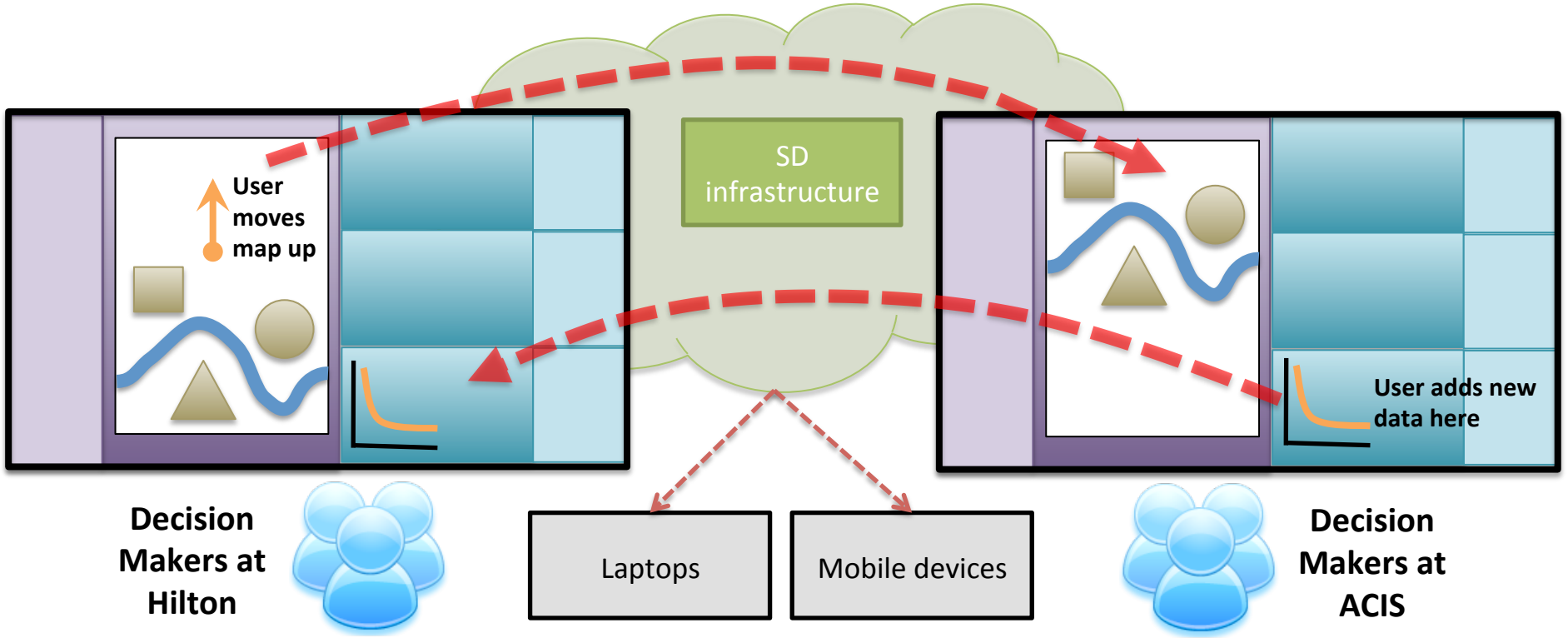
Long Term Goals:
Multi-site Visualization Interface for Disaster Management



Collaboration Areas:

- UI/UX
  - Test and improve the usability of the application; novel interaction modalities
- Data integration/visualization
  - Heterogeneous datasets; layered visualization
- Infrastructure
  - Integration with resilient, flexible networks

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Acknowledgements

- LAVA Laboratory, University of Hawaii, Manoa
  - Dylan Kobayashi
  - Jason Leigh
- MURPA Program, Monash University, Australia
  - Matthew Ready
  - Tim Dwyer
- AIST ICT International Team