



**Deltares**

**Community Flood Resilience  
Support System for Coastal  
Communities across the U.S**  
Demonstrated through a pilot project in  
Charleston, South Carolina

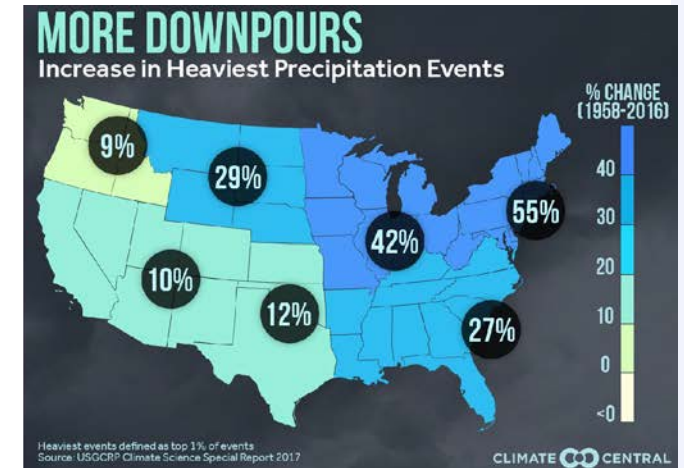
Kathryn Roscoe

April 13, 2021

## Preparing for the future

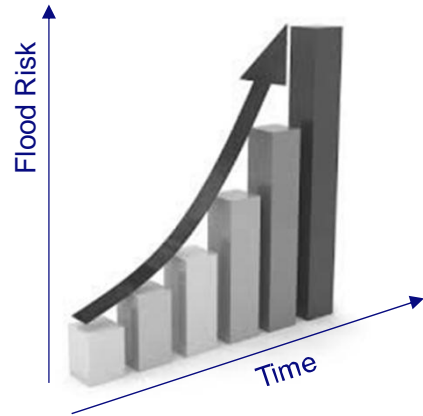


# Drivers of risk



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# What is the system response?



Charleston flooding from heavy rains in September 2020

# Modeling needs to be easier and faster

What if a category 4 comes just north of the city?

What if it comes just south?

What if we put in a sea wall? Will the rainwater back up behind the wall?

What if the population rate doubles?

How is the risk distributed over income classes?

How long will a drainage pump keep flood levels manageable?

# Research and development collaboration

**Deltares** USA



**Homeland  
Security**

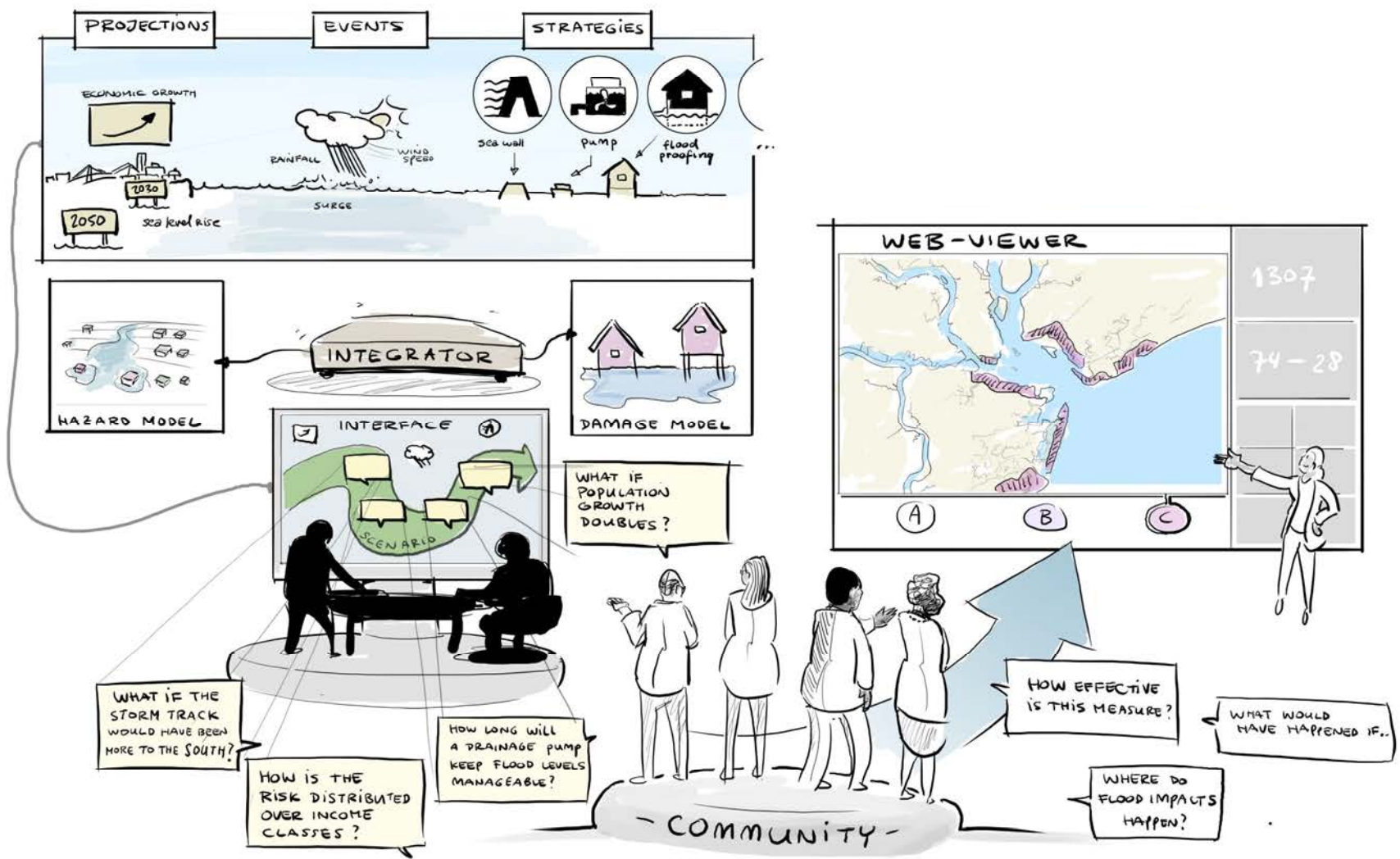
Science and Technology



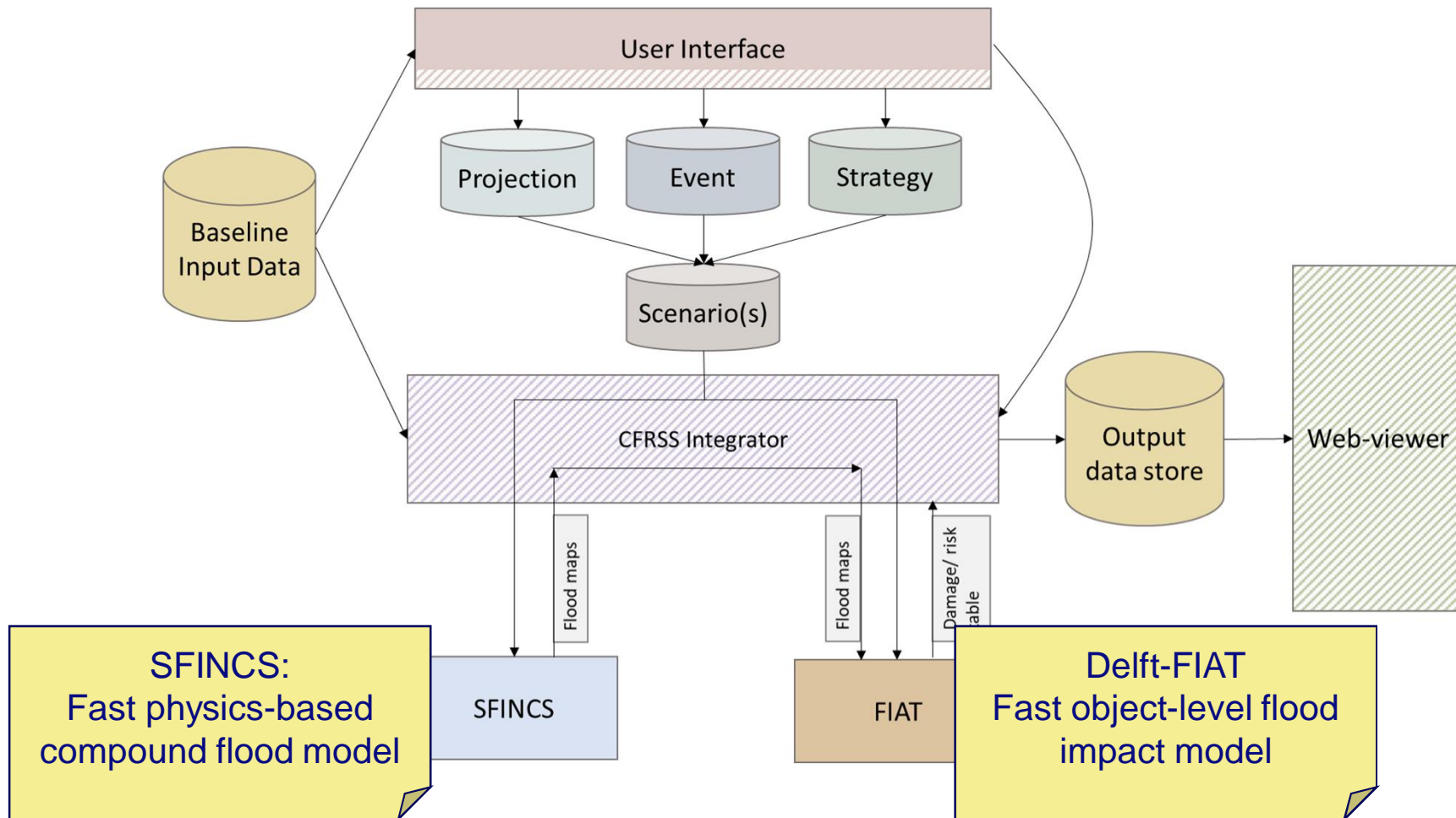
*City of Charleston*

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# COMMUNITY FLOOD RESILIENCE SUPPORT SYSTEM



# Nuts and bolts

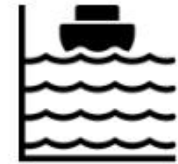




# Charleston Application

- Lots of studies in Charleston
- How does the CFRSS help?

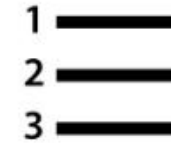
*“This tool will help show benefits and even the playing field. We will be able to compare the effectiveness of different measures in different areas. And find out what is effective where, and for how long” – Mark Wilbert, Chief Resilience Officer, Charleston*



[Flooding and Sea Level Rise Strategy](#)



[Dutch Dialogues](#)



[All Hazards Vulnerability and Risk Assessment](#)



[USACE Peninsula Flood Risk Management Study](#)



[Hazard Mitigation Plan](#)



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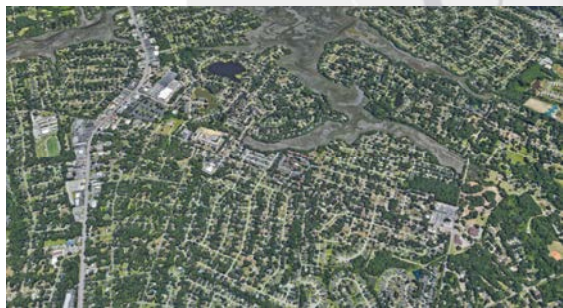
[Charleston Rainproof](#)



[Map History Tour: Living with Water](#)

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# Charleston Application



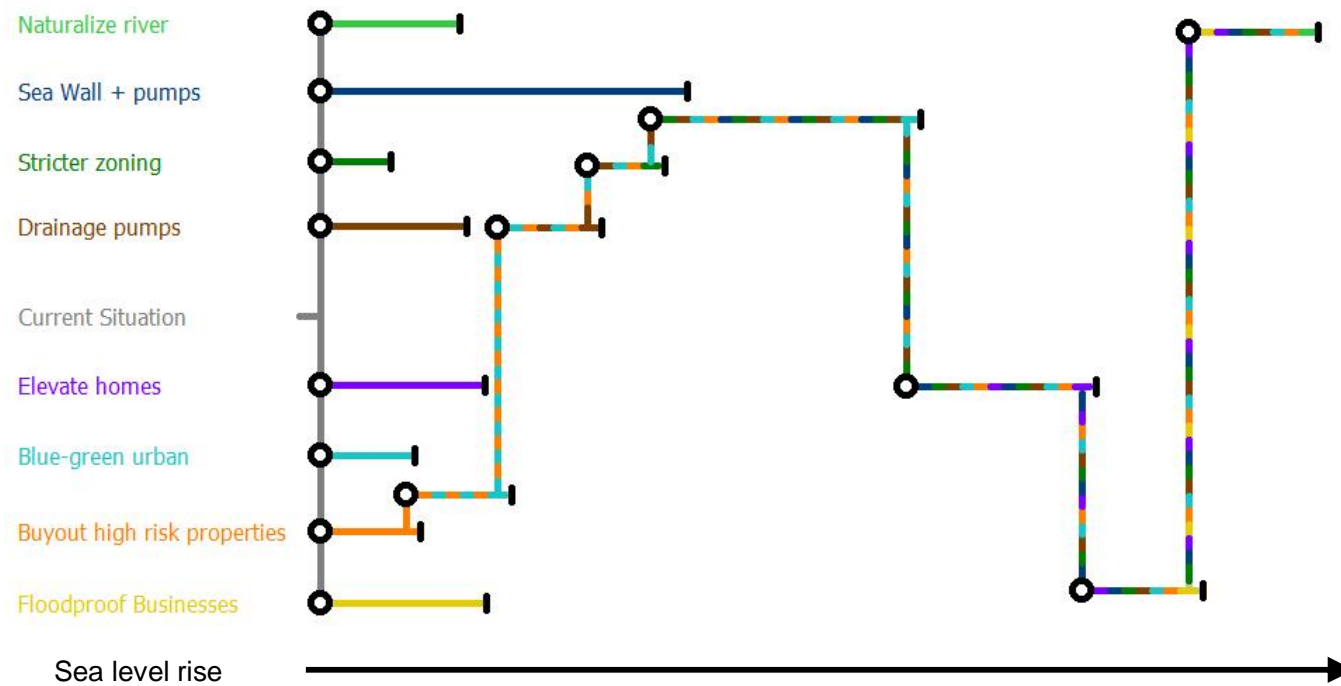
# Essential Facilities



- Fire stations
- Sub-stations
- Evacuation centers
- Community exits/entrances

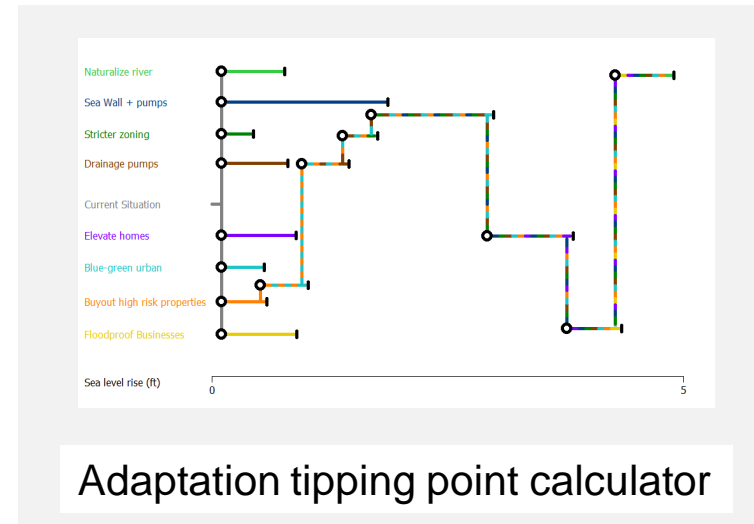
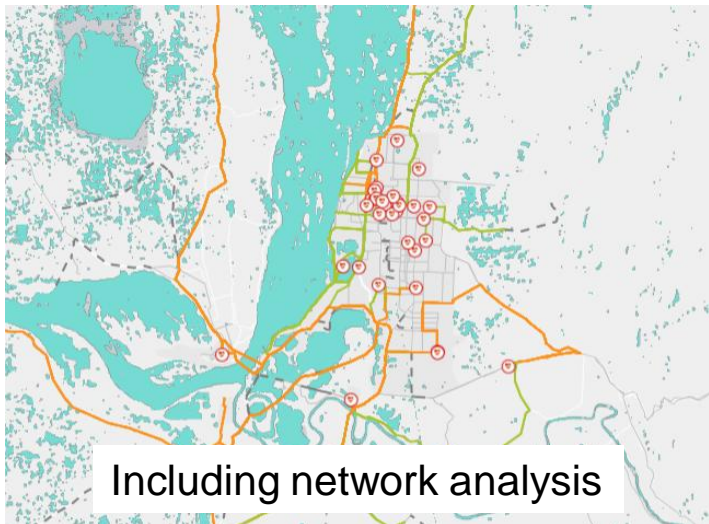
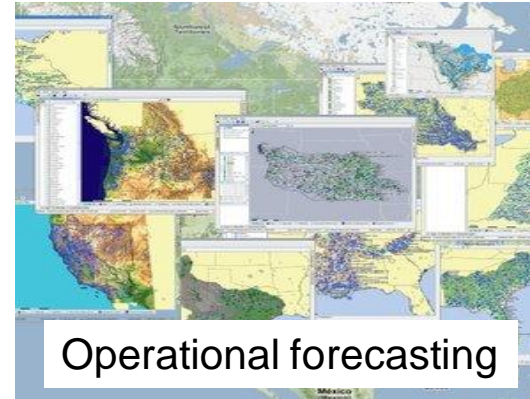
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# Adaptive planning



Example

# Future ideas for the CFRSS



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# Contact

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