

Smart Sea Level Sensors in Savannah & Chatham County



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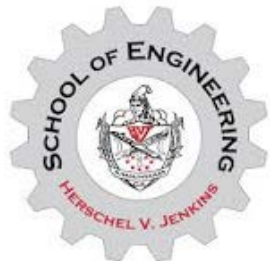
The project team



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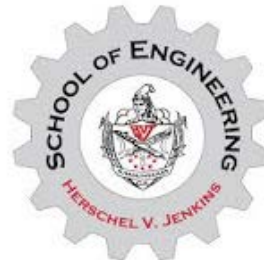
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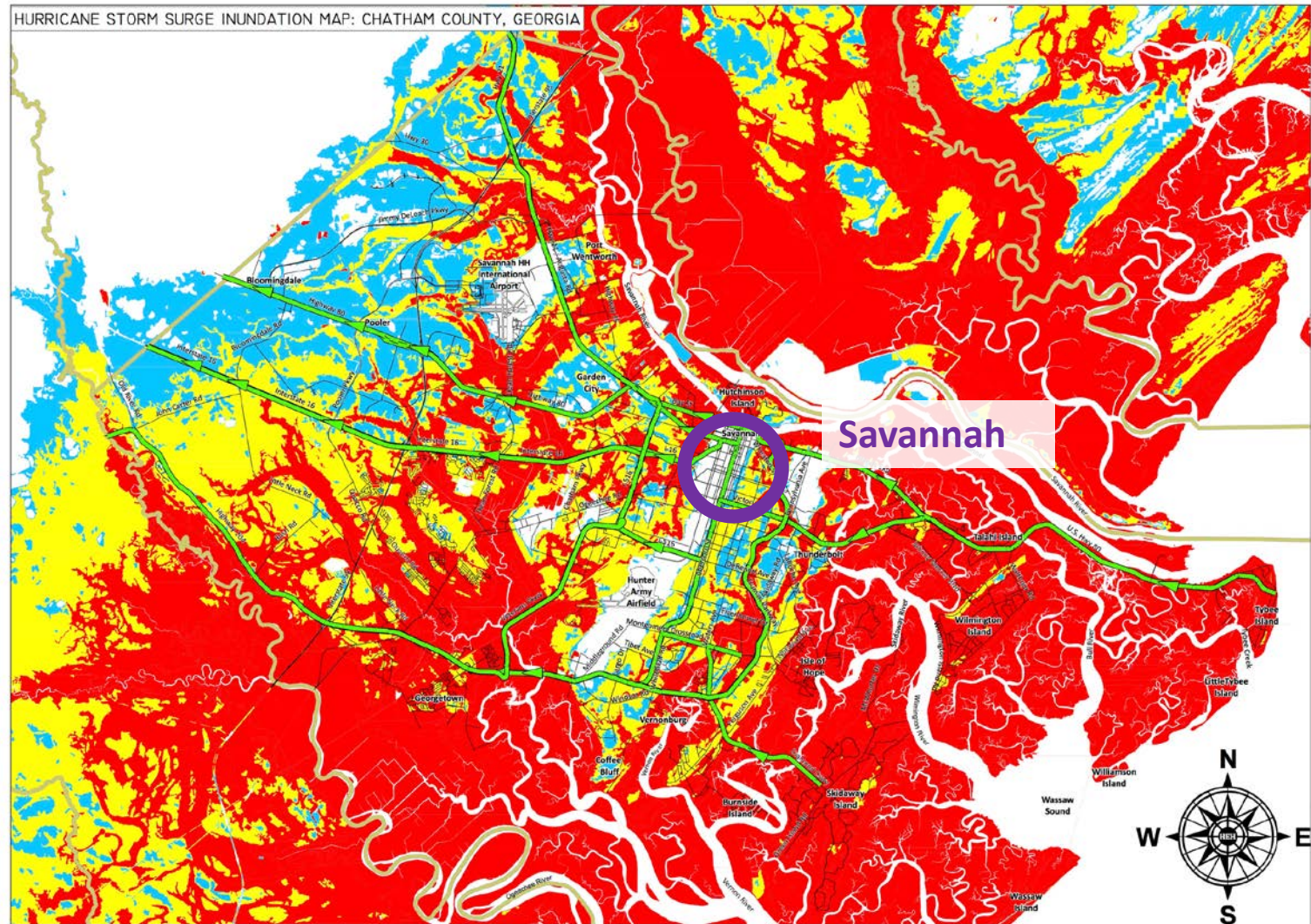


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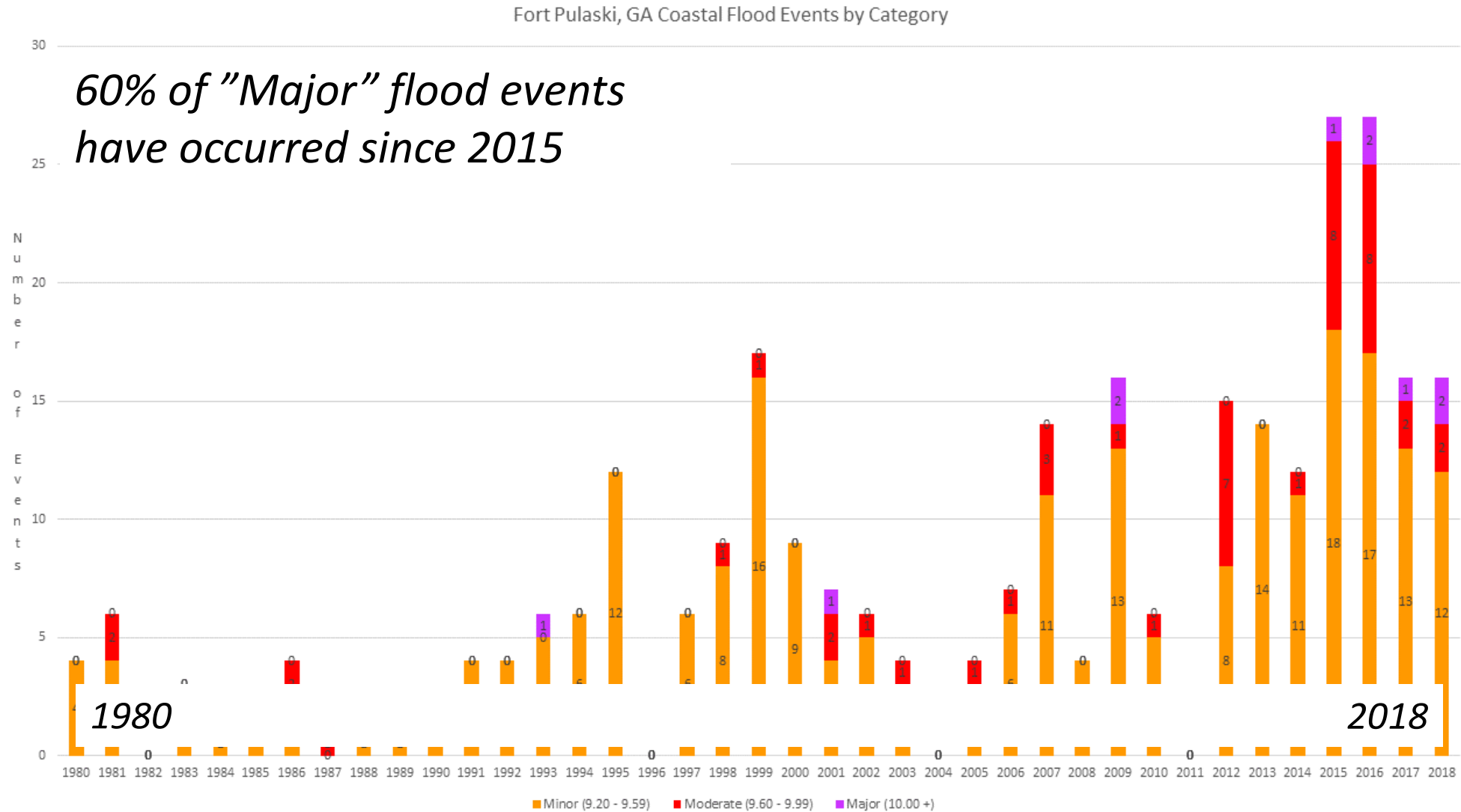
GEORGIA
DEPARTMENT OF NATURAL RESOURCES

Coastal flooding – a current threat



<https://www.chathamemergency.org/storm-surge-impact-by-category.php>

Sea level rise on the Georgia coast



Source: NWS Charleston

flooding frequency and intensity rising

“Sunny day flooding”

Nov 24, 2018



currently:
sea level, air temperature



12 sensors
10 gateways

goal: 50
sensors by
August





gateway device:

- 1 to 4 mile range
- can serve hundreds of sensors
- needs internet, power

goal:

provide backbone for
diverse ‘internet of things’
applications

A person wearing a blue and white plaid shirt is working on a sensor assembly. They are using a small probe to connect a multi-colored ribbon cable to a small electronic component. In the background, there is a grey connector with several colored wires (red, yellow, white, black) plugged into it. The scene is set on a dark workbench with various tools and components visible.

benefits of GT-designed sensor:

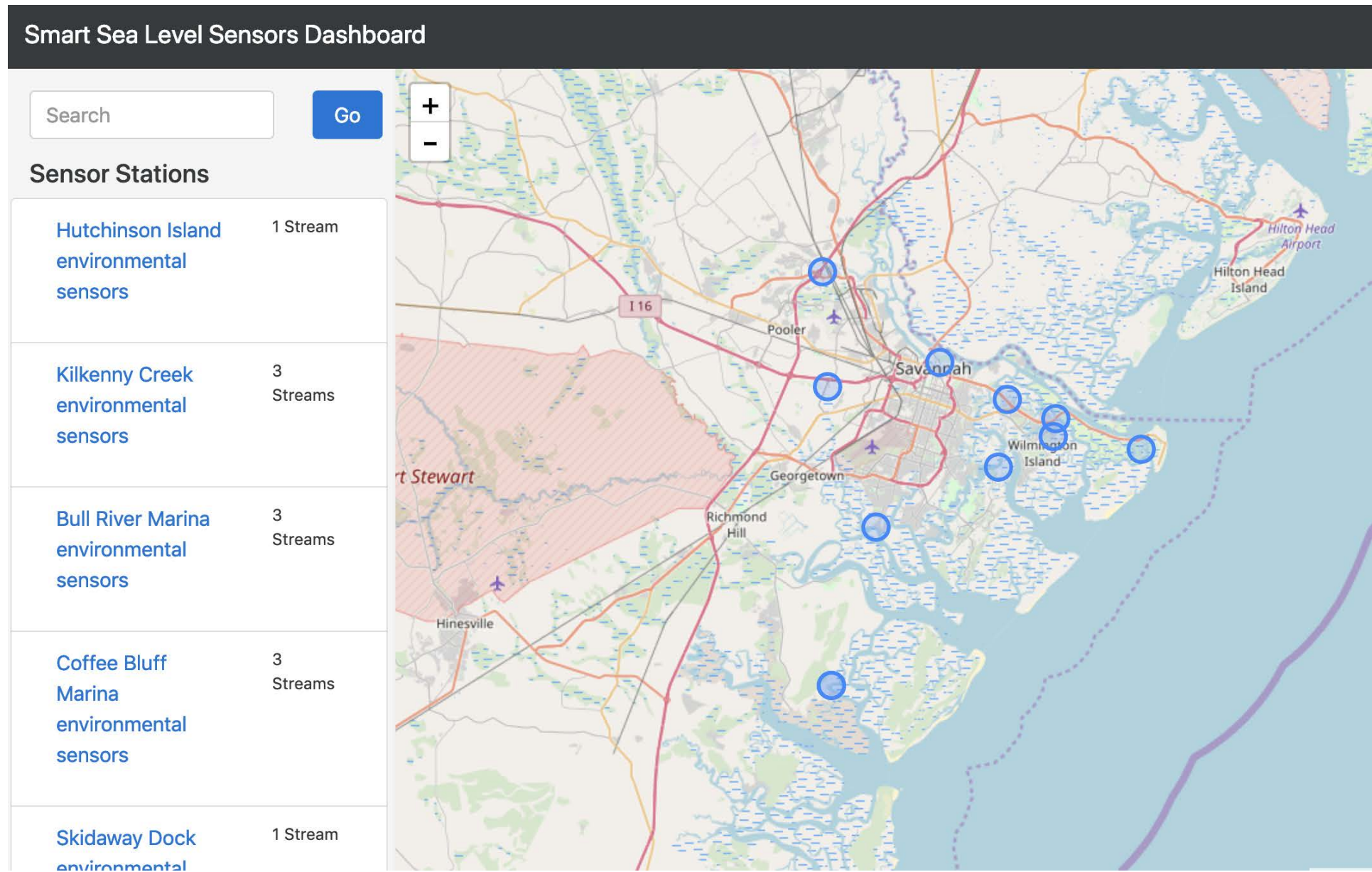
high precision (1mm)

long battery life (3-5yrs)

low cost (<\$300 components)



Dashboard demonstration





**Georgia
Tech**



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

Lead:

Dr. Emanuele Di Lorenzo

Director, Ocean Science & Engineering

Earth & Atmospheric Sciences

**FROM THE OPEN OCEAN TO THE URBAN
SCALE:
A MODELING SYSTEM FOR
SAVANNAH CITY AND THE GEORGIA COAST**

Savannah Profile

Population

City: 145,000, Metropolitan area: 300,000

64% minority, 55% African American

Socio Economic

Median household income: \$54K

Vulnerable census tracts: \$12 – 18K (disproportionately African American)

Unemployment: 6%

Vulnerable census tracts: 10 – 20%

Poverty rate: 25% for over 30 years

Vulnerable census tracts: over 60%

Project goals

emergency planning & response

real-time data portal & toolkits, neighborhood-level emergency response plans

short and long-term risk assessment and resilience planning

develop & test educational resources

middle school & high school curricula

community engagement and building awareness (EJ lens)

equitable access to information, needs assessments, graphical representations of data, citizen science opportunities, public events, installations, resilience planning

Educational partnerships

Jenkins High School – assembling sensors



Oglethorpe Middle School – sea level curriculum development

Community engagement

Brunswick workshop on sea level rise Jan 22, 300 attendees

Public forum every 2 months at on-site project workshops

Adopt-a-Sensor program

Partnership with Harambee House for Environmental Justice

Georgia Tech student intern



Augmented reality

Mobile app that visualizes flood risk scenarios



Lessons learned..

There is much to learn from on-going efforts across the country

Overwhelming interest in project from students, residents, key stakeholders, policymakers

New data opens new channels and methods of communication with community about risk and resilience

Next steps

Robust web-based portal and public data: grab data in one click (DONE)

Roadmap for municipalities, using the data to inform policy, infrastructure planning & investment, community development, and resilience implementation

Develop a process and set of tools for engaging underserved communities and communicating the impact of the data in ways that are relevant to them

Additional sensor applications: seawater properties, air quality, inland flooding, etc.

Broader desires

Scalable framework that can be tailored to other coastal communities for sensor deployment & community engagement

Collaborative data, modeling and engagement sharing among municipalities and regions along the eastern seaboard

Develop best practices and accelerate adaptation and resilience efforts

Questions?

Smart Sea Level Sensors Expo

May 16, 3:30-6pm

Jepson Center, Savannah



<http://sealevelsensors.org>