

# Design and Development of a Near Real-Time Community Crowdsourced Resilience Information System for Enhancing Community Resilience in the Face of Flooding and other Extreme Events

PI: Barnali Dixon, University of South Florida. Co-PIs: Subhrajit Guhathakurta<sup>1</sup>, Peng Chen<sup>1</sup>, Yi Qiang<sup>2</sup>, and Eugene Yan<sup>3</sup>

<sup>1</sup>Georgia Tech, <sup>2</sup>University of South Florida, <sup>3</sup>Argonne National Lab

Award Type: S&CC: Smart & Connected Communities [#2325631]

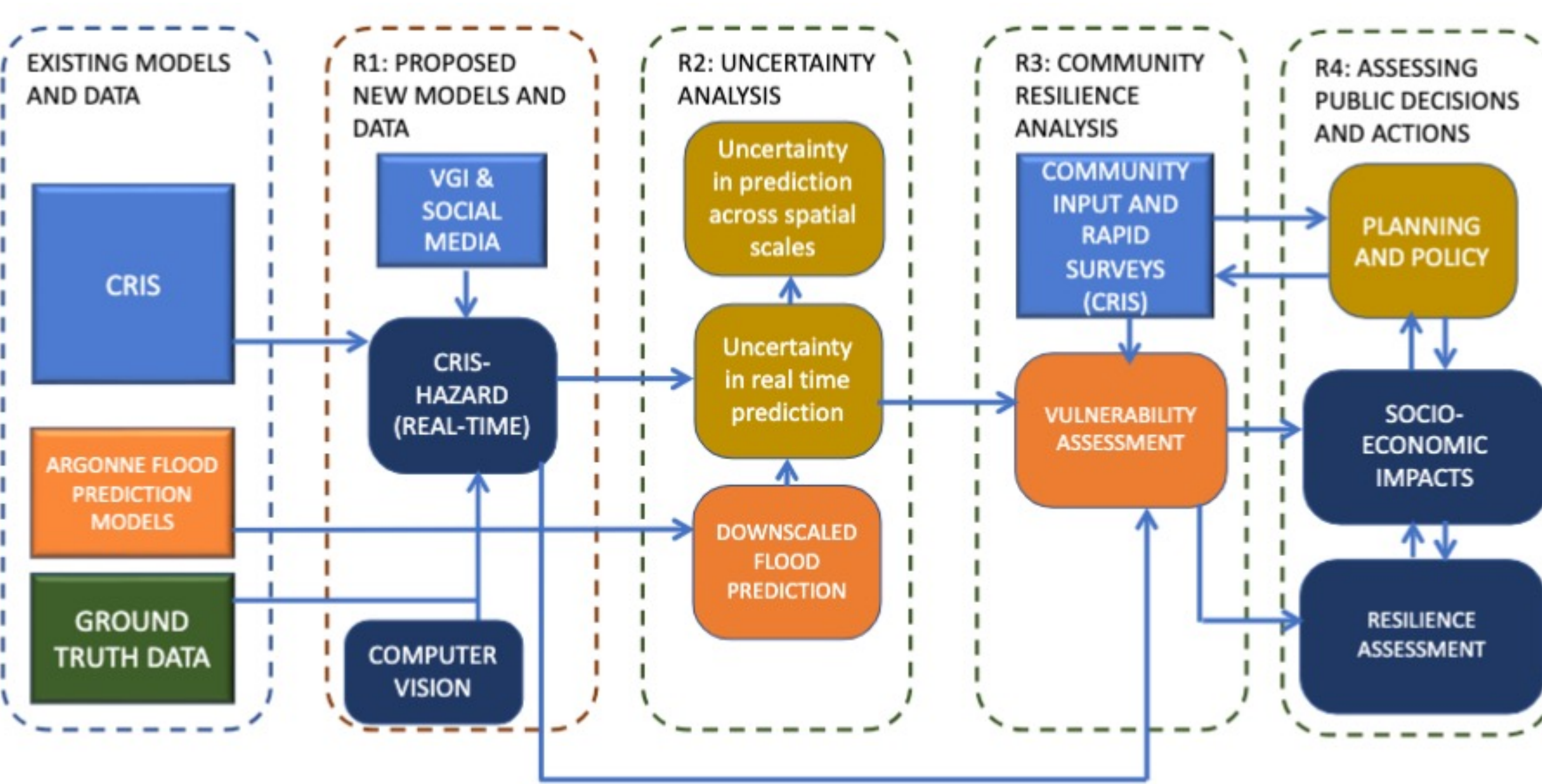
## a) Project Challenge

With increasing extreme weather events and a changing climate, there is an urgent need to assess, manage, and monitor flooding-related risks and communicate such risks to impacted communities in an efficient and timely manner.

Yet, achieving these objectives has been complicated by several socio-technical challenges, including:

- 1) The unavailability near real-time, two-way communication of flood-related hazards for the impacted communities
- 2) The lack of high-fidelity models of flooding risk and risk trajectories at a fine spatial and temporal scale
- 3) Limited knowledge about the level of uncertainty embedded in the data and models and how that informs decision-making.

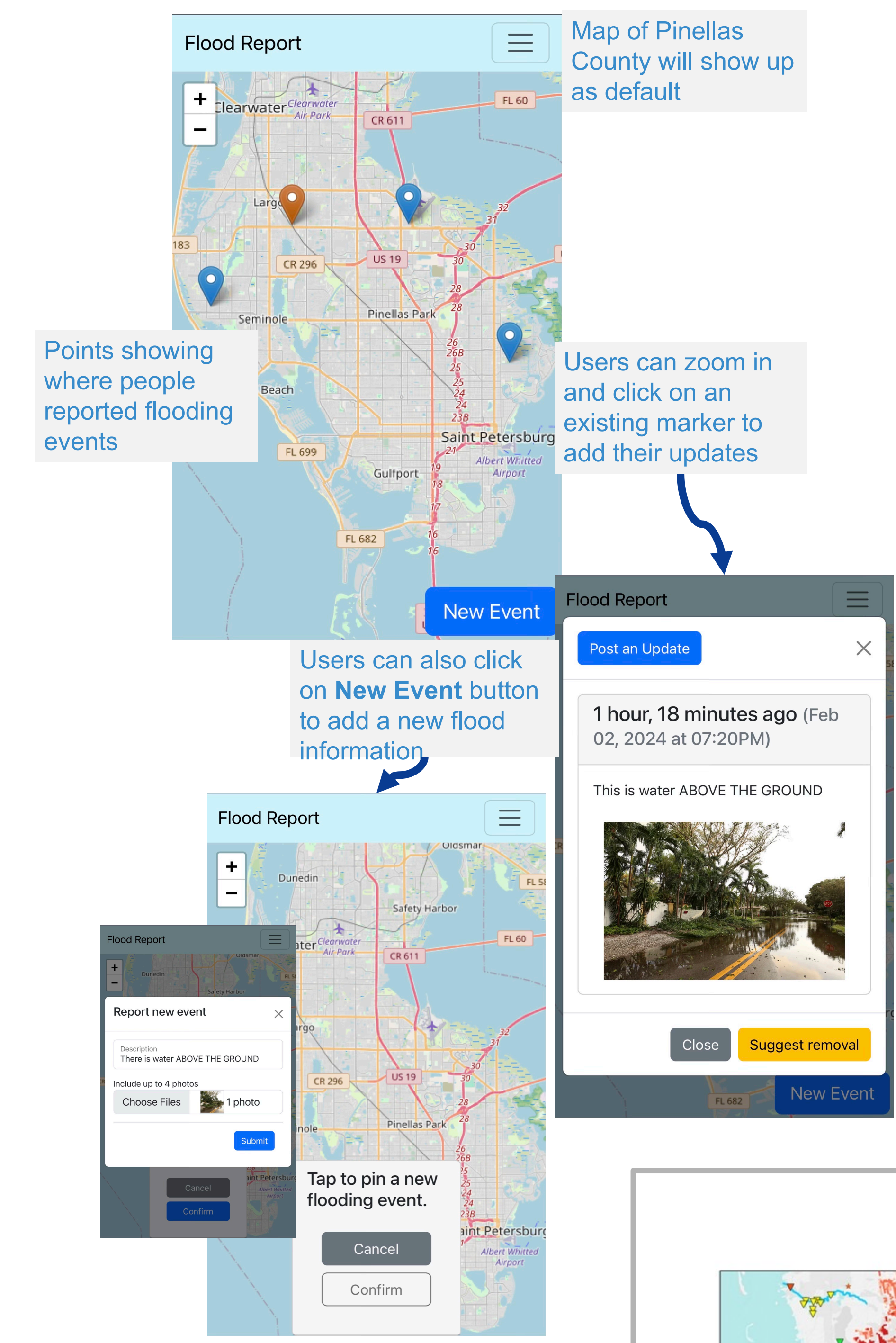
## b) Intellectual Merit



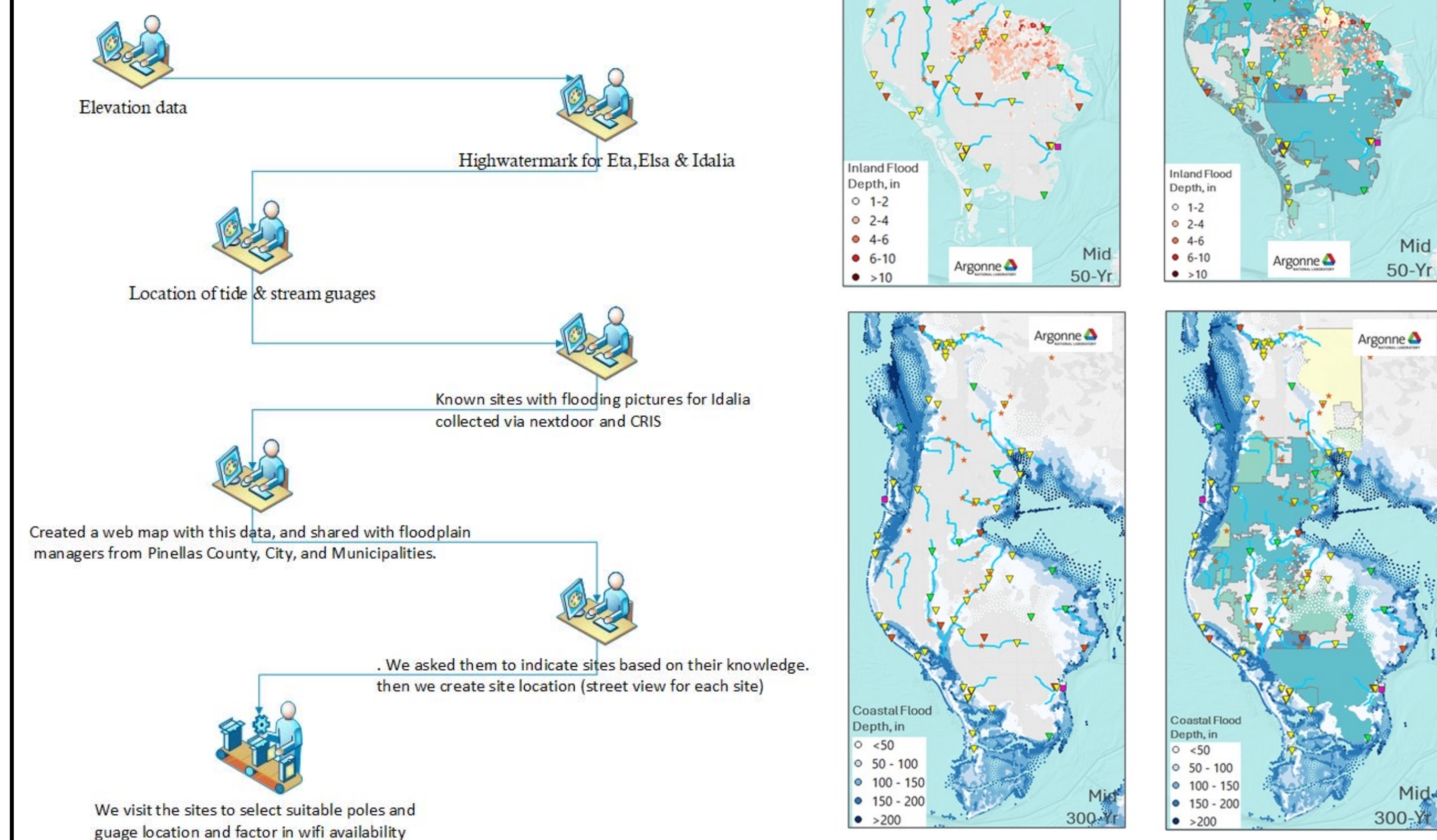
Our study breaks new ground in **integrating user-supplied data (crowdsourced) with near real-time flood prediction models and novel forms of uncertainty analysis to inform decisions about mitigating risks and improving resiliency in coastal communities.**

## c) Progress

### Crowdsourcing App in Development



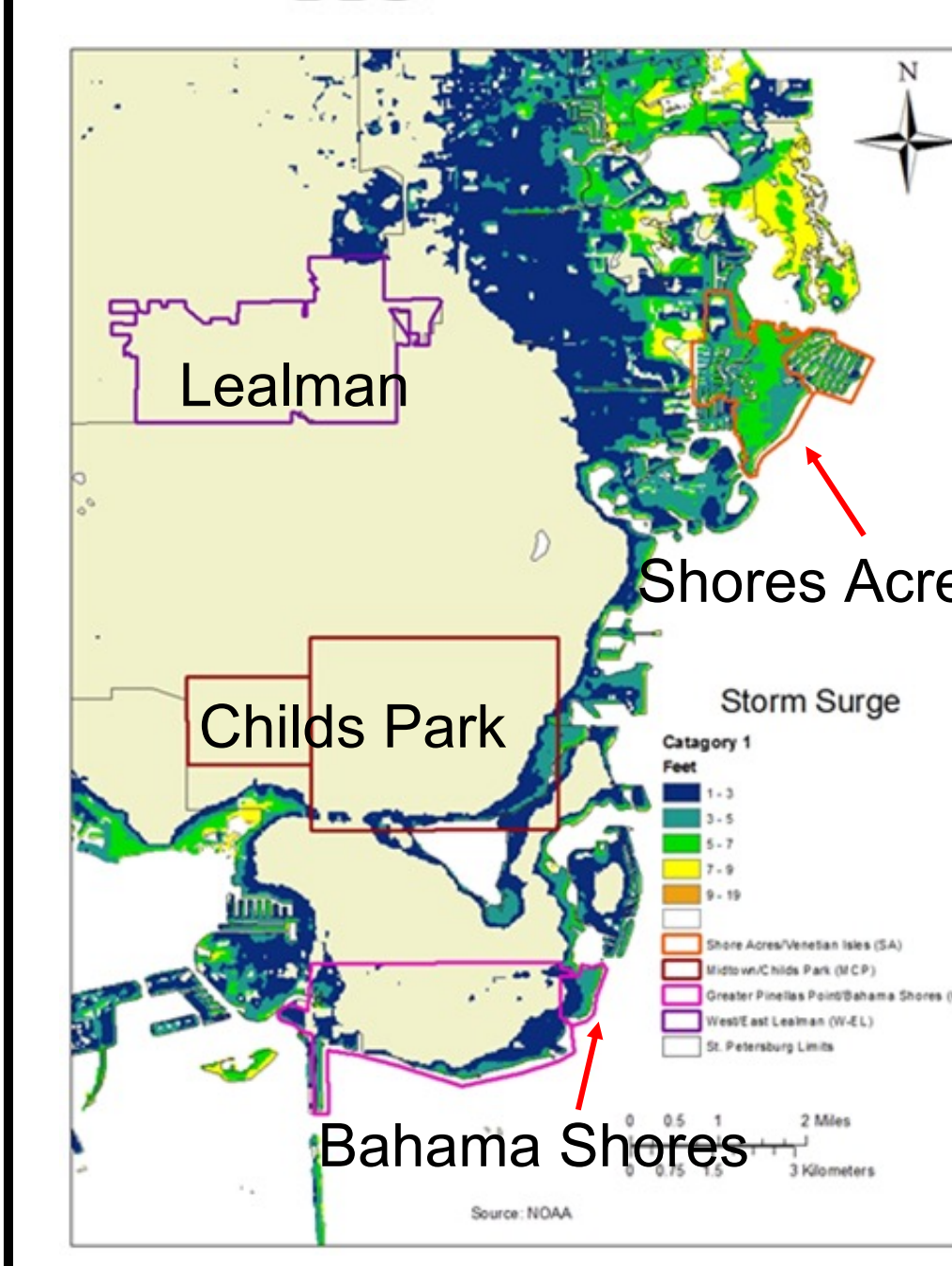
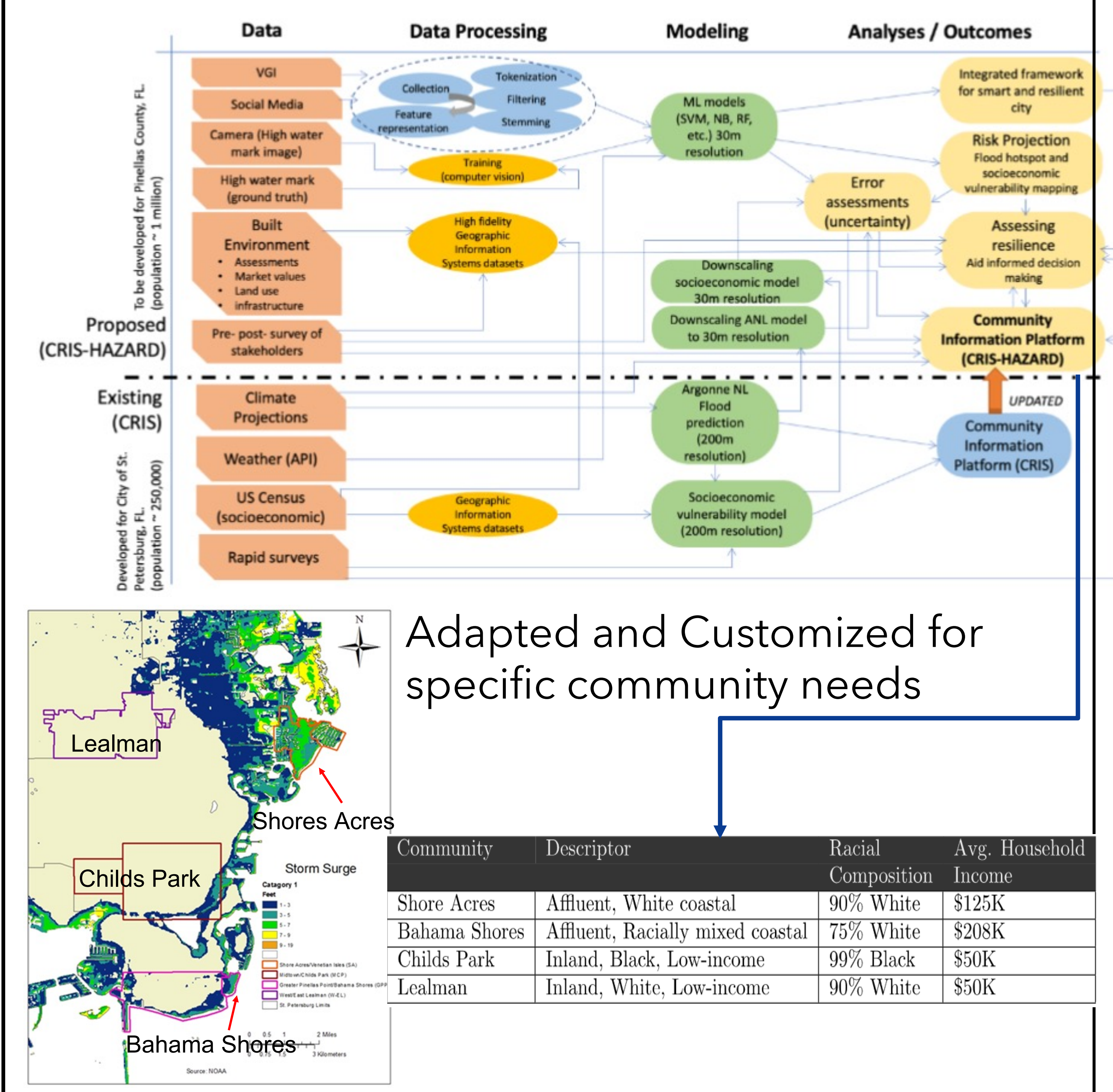
### High Watermark Camera Site Selection



## d) Broader Impact

1. Groom *citizen scientists* to partner in our model calibration, information processing, and dissemination efforts.
2. Connect communities to decision-makers and provide *easily accessible information on risks and vulnerability* to individuals and communities.
3. Understand the *differential impacts of flooding on diverse communities* in the digital divide and marginalization context.

## e) Future Goals



Adapted and Customized for specific community needs

Community	Descriptor	Racial Composition	Avg. Household Income
Shore Acres	Affluent, White coastal	90% White	\$125K
Bahama Shores	Affluent, Racially mixed coastal	75% White	\$208K
Childs Park	Inland, Black, Low-income	99% Black	\$50K
Lealman	Inland, White, Low-income	90% White	\$50K