

Geovisualizing climate risks

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Presented by: Andrea Minano, PhD Candidate
Research Manager
Flood Policy Research Group



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Flood Policy Research Group
University of Waterloo

Climate change impacts

- What google says about “climate change”...



Effects | Facts – Climate Change: Vital ...
climate.nasa.gov



Mitigation and Adaptation | Solution...
climate.nasa.gov



What is climate change? - David Suzuki ...
davidsuzuki.org



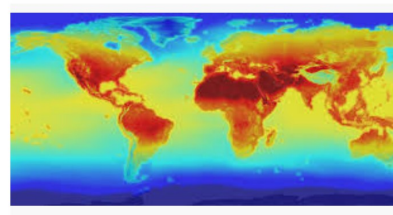
10 Solutions for Climate Change ...
scientificamerican.com



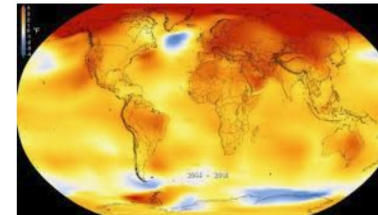
Climate change could pose 'existential ...
cnn.com



The World Was Just Issued 12-Yea...
smithsonianmag.com



Climate or Weather? Climate Change or ...
asc-csa.gc.ca



Climate change: World heading for ...
bbc.com



State of the Climate in 2018 sh...
public.wmo.int



Trump on climate change report: 'I don ...
bbc.com



A toxic belief in the non-existence of ...
irishtimes.com



Climate Change Is Settled Science | Time
time.com



Barriers

- Climate change has been described as an “abstract”, “nebulous” and “distant” issue
 - Happens elsewhere, in the future (Preston et al. 2011; Hulme 2009; Adger et al. 2009)
- “People tend to feel less responsibility for issues that are perceived as neither observable nor imminent”



Geography + visual tech

- Connect the dots
 - Local and visible issue (Sheppard 2015)
- Communicate risks
- Raise awareness
- Promote climate change action

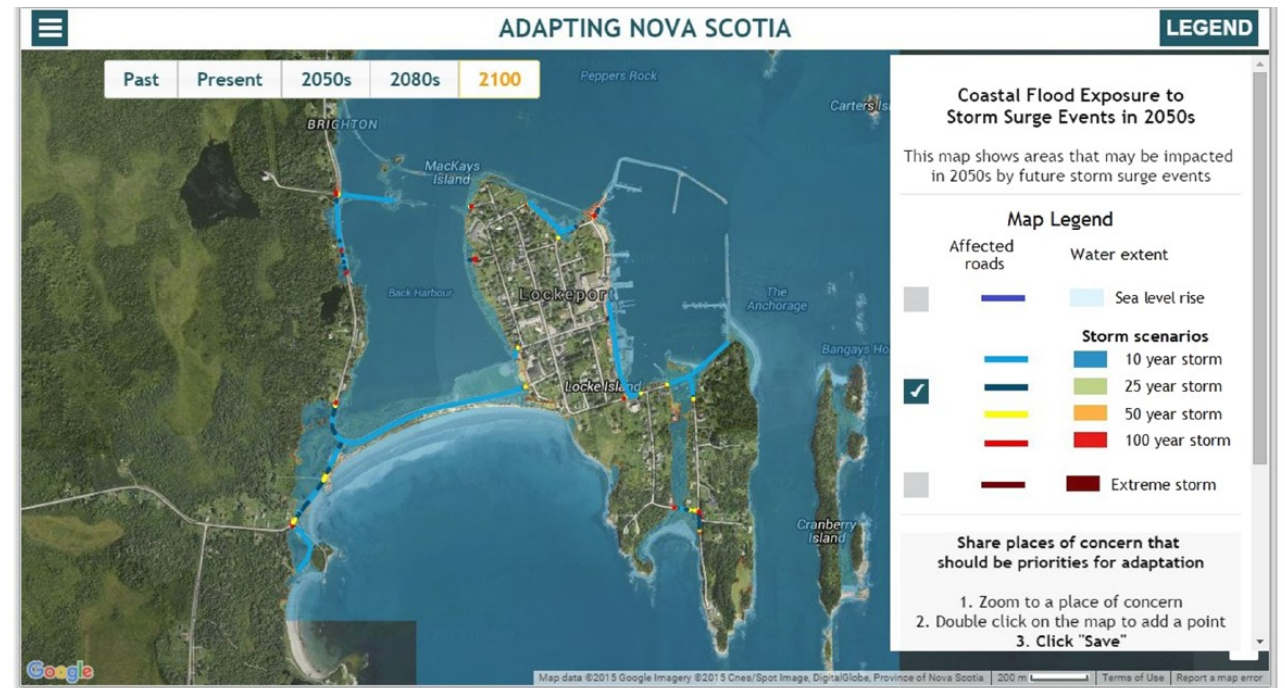


Example from Nova Scotia

- AdaptNS
 - Coastal flooding and sea level rise
 - Developed in collaboration with community members
 - Evaluated the tool in a controlled workshop environment

| Return Period | Residual | Level 2000 | Level 2025 | Level 2055 | Level 2085 | Level 2100 |
|---------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 10-Year | 0.71 ± 0.20 | 3.01 ± 0.20 | 3.16 ± 0.23 | 3.44 ± 0.35 | 3.84 ± 0.56 | 4.07 ± 0.68 |
| 25-Year | 0.81 ± 0.20 | 3.11 ± 0.20 | 3.26 ± 0.23 | 3.54 ± 0.35 | 3.94 ± 0.56 | 4.17 ± 0.68 |
| 50-Year | 0.88 ± 0.20 | 3.18 ± 0.20 | 3.33 ± 0.23 | 3.61 ± 0.35 | 4.01 ± 0.56 | 4.24 ± 0.68 |
| 100-Year | 0.95 ± 0.20 | 3.25 ± 0.20 | 3.40 ± 0.23 | 3.68 ± 0.35 | 4.08 ± 0.56 | 4.31 ± 0.68 |

Richards and Daigle (2011)

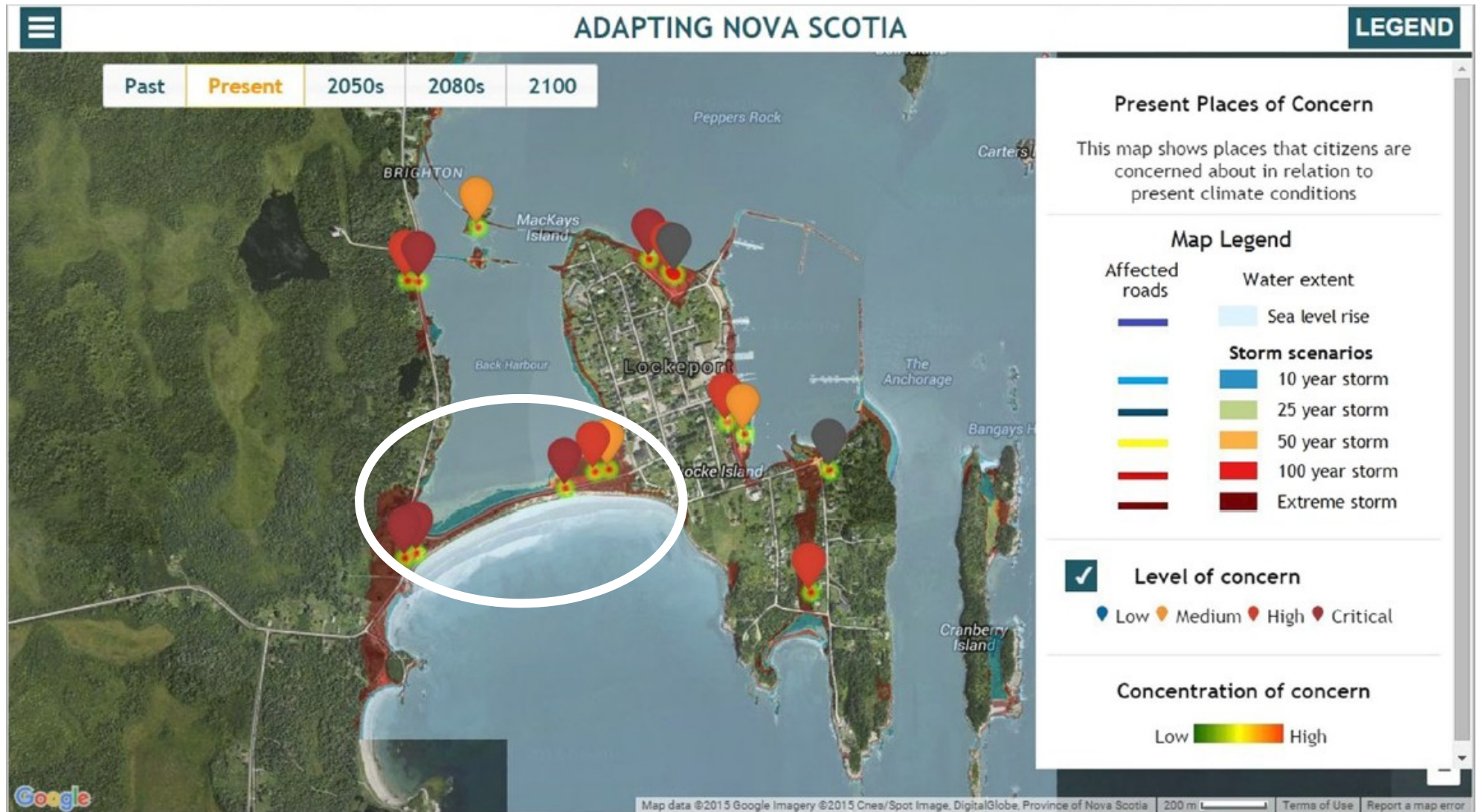


Minano et al. (2018)

PG. 5



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Minano et al. (2018)

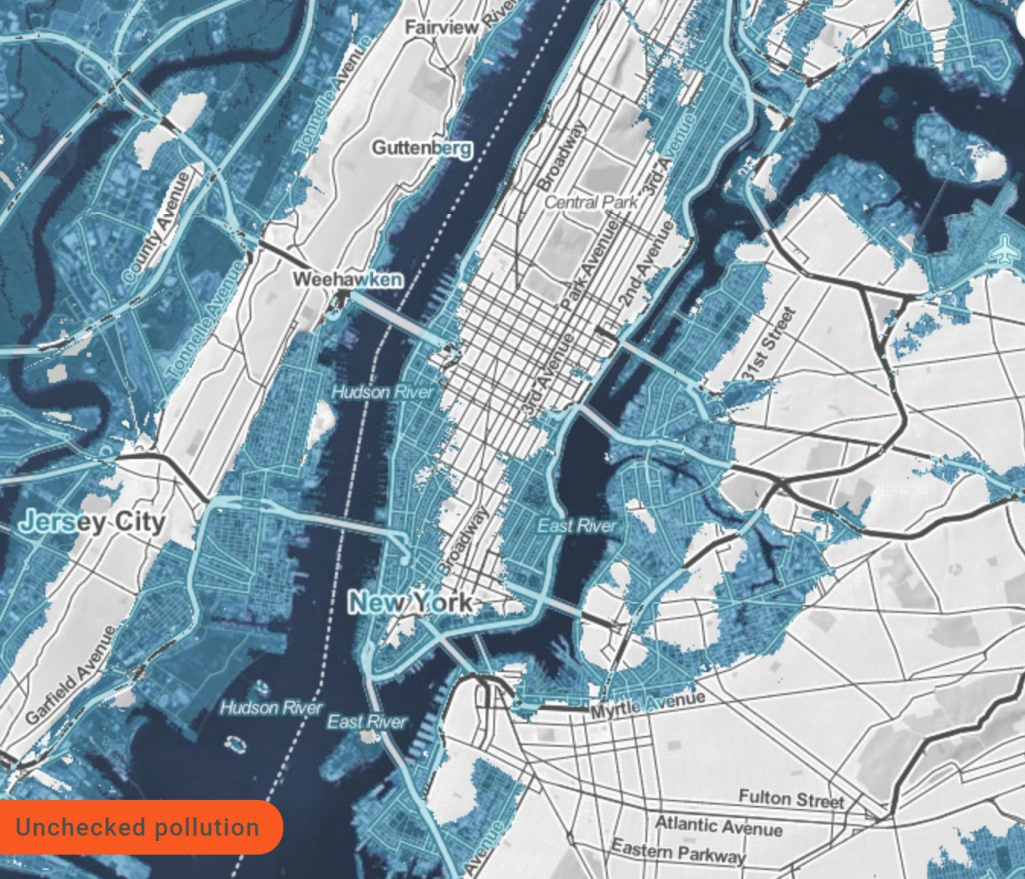


Results

- Increased availability of information
- Increased awareness of local climate change impacts
- Motivated discussions about adaptation, priorities
- Recognized as usable tool for acquiring funding for adaptation projects



Other examples



Sea level rise in New York City
(Climate Central 2019)





Climate adaptation futures in Delta, BC (Sheppard et al. 2011)

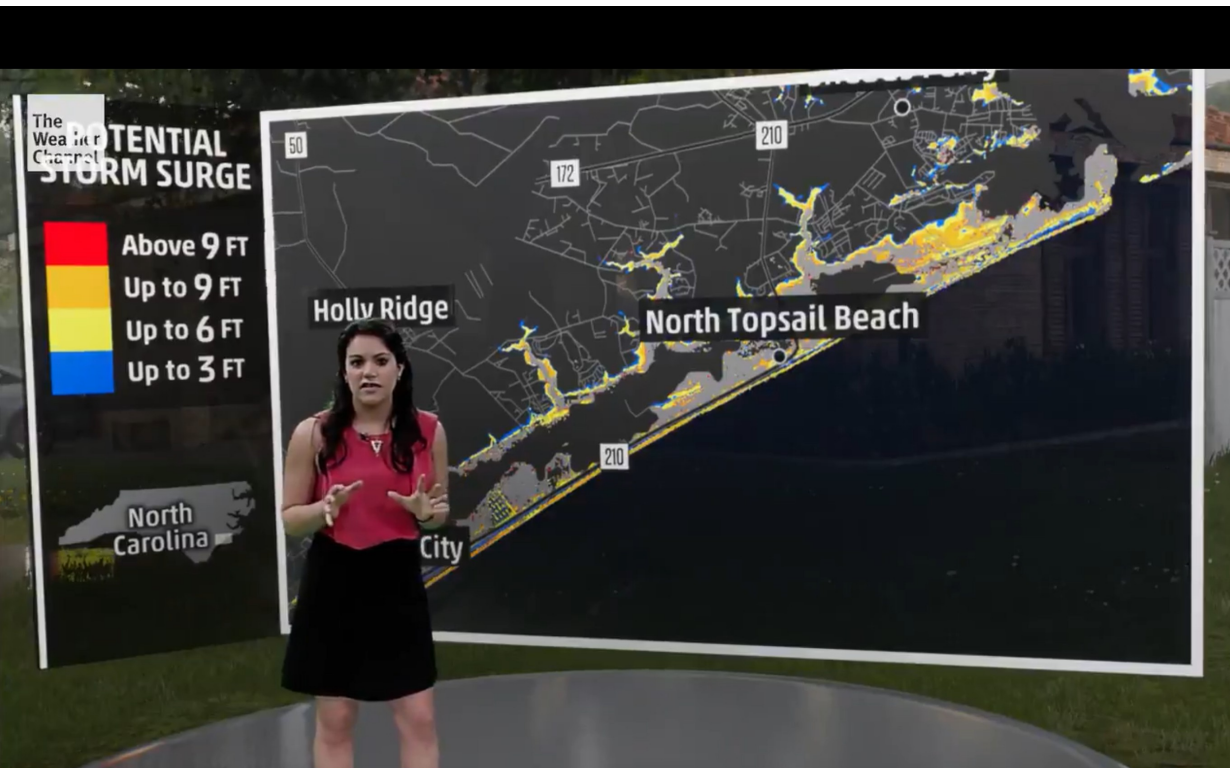


Augmented reality with mobile devices



Streetview sea level rise visualizer (Climate Access, 2018)





Augmented reality of storm surge (Weather Channel, 2018)

Persistent issues

- Awareness does not equal action (e.g., memories can fade, politics, lack of resources impedes action)
- Many tools but not much long-term evaluation (e.g., useful for practitioners?)
- Future work...



THANK YOU



UNIVERSITY OF WATERLOO
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Andrea Minano, PhD Candidate

Research Manager

aminano@uwaterloo.ca

[@Andrea_Minano](https://twitter.com/Andrea_Minano)

