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Welcome to the Sea Level Rise Toolbox

Eyes on the Rise, Florida International University

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Eyes on the Rise

About the App

Welcome to the Sea Level Rise Toolbox

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ABOUT THIS APP

The Sea Level Rise Toolbox is part of Eyes on the Rise, a project of Florida International University School of Journalism and Mass Communication professors **Susan Jacobson**, **Robert "Ted" Gutsche**, **Kate MacMillin** and **Juliet Pinto**, and their students.

The goal of the Sea Level Rise Toolbox is to inform citizens of South Florida about the potential impact of sea level rise in their neighborhoods. We want to help our fellow Floridians adapt to sea level rise and better understand what local governments, including Miami Beach and Miami-Dade County, are doing to adapt to sea level rise. To this end, FIU Journalism students have

produced a video series on Sea Level Rise Impact for WPBT2, and we have partnered with journalists from Fusion, whose reporting on the Miami Beach Centennial and sea-level rise adaptation efforts helps provide this context to the app.

The visualization of the sea level rise is based upon the **State of Florida Division of Emergency Management LiDAR ProjectLAS Dataset** hosted by the FIU International Hurricane Research Center (see details at http://digir.fiu.edu/Lidar/lidarNew.php). It is intended to project results of "static" sea level rise, not taking tidal effects in consideration. The web visualization of the "static" sea level rise map (details here) is developed by FIU's Geographic Information Systems (GIS) Center. The app's main feature is an interactive sea level rise viewer where users can enter an address to visualize how up to a 6ft increase in sea level may affect their neighborhoods in the Tri-County area of South Florida.

As development on the Sea Level Rise Toolbox continues, it will also include a database of flood reports from both government and citizen sources in South Florida. Miami-Dade County recently launched an open data portal that includes flood reports, which will be included in the flood database. The flood report database will help residents identify the incidence of what the National Oceanic and Atmospheric Administration calls 'nuisance flooding,' a phenomenon that is increasingly common as coastal sea levels rise.

HOW TO USE THE APP

To find your location…

Enter a location — an address or landmark — into the search box, or **click** on a location on the map itself.

To See Sea Level Rise

Click on **Sea Level Rise** to show your elevation and to simulate sea level rise. Slide the slid knob slowly to the right to simulate sea level rise.

Elevation Data

The **elevation data** is provided by Google's elevation service. The value is interpolated from actual elevation measurements at the four nearest available locations. The **horizontal resolution** is the distance between these points.

Please note that we use Google Elevation to show the elevation of the address entered by the user, but we do not use Google Elevation to calculate the visualization of sea-level rise (see below for more details).

WHO MADE THIS APP?

This application was produced as part of the Eyes on the Rise project, which is lead by FIU journalism professors **Ted Gutsche**, **Susan Jacobson**, **Kate MacMillian** and **Juliet Pinto**. **Susan Jacobson** is the project manager of the app.

Dozens of journalists, scientists, technology developers and citizens have contributed to the development of the Sea Level Rise Toolbox, including the Geographic Information Systems (GIS) Center at FIU under the leadership of GIS Director Jennifer Fu and **Dan Mcgillicuddy**, the lead developer; reporters, editors and designers at Fusion under the leadership of **Adam Auriemma**; the civic hacking group Code for Miami, especially members **Rebekah Monson**, **Cristina Solana**, **Yamileth Medina**, **Chris Scott** and **Ernie Hsuing**; **Hacks/Hackers**, the international grassroots journalism and technology group, particularly Hacks/Hackers Miami and the Media Party hosted by Hacks/Hackers Buenos Aires; many students and faculty

members at FIU; and many others who lent their opinions and expertise to the project.

WHO FUNDED THIS APP?

Funding for this project came from the Online News Association Challenge Fund, which is supported by the Excellence and Ethics in Journalism Foundation, the Robert R. McCormick Foundation, the John S. and James L. Knight Foundation, the Democracy Fund, and the Rita Allen Foundation.

ABOUT THE DATA SOURCES

Elevation Data

This application uses elevation data from the Google Elevation Service. The elevation value is interpolated from actual elevation measurements at the four nearest available locations. The **horizontal resolution** is the distance between these points. **Please note that we use Google Elevation to show the elevation of the address entered by the user, but we do not use Google Elevation to calculate the visualization of sea-level rise.**

Sea Level Rise Visualization

The visualization of sea level rise is based upon the **State of Florida Division of Emergency Management LiDAR ProjectLAS Dataset** hosted by the FIU International Hurricane Research Center (see details at http://digir.fiu.edu/Lidar/lidarNew.php). It is intended to project results of "static" sea level rise, not taking tidal effects in consideration. The web visualization of the "static" sea level rise map (details here) is developed by FIU's Geographic Information Systems (GIS) Center. The data and maps in this tool illustrate the scale of potential flooding, not the exact

location, and do not account for erosion, subsidence, or future construction. Water levels are shown as they would appear during the highest high tides (excludes wind driven tides), also known as MHHW (mean higher high water – see http://co-ops.nos.noaa.gov/datum_options.html for a definition).

The visualization of the "static" sea level rise map is created using following method:

1. There are six layers available at each foot level between 1 and 6. The opacity of all layers defaults to 0.
2. If the slider is set between 0 and 1 then the opacity of the 1 foot layer is set linearly. That is, for a desired opacity of op (in our case 0.8) and a setting of 0.6 feet, op1 = 0.6 * op.
3. If the slider is set higher than 1 then two layers are on at a time.
4. The higher layer is set as above and the lower layer is set to maintain the overall opacity, since the higher layer covers all of the same area as the lower plus additional areas.
5. So if the slider is set to 1.15, then op2 = 0.15 * op and op1 = 1 – ((1 – op) / (1 – op2)). Maintaining the overall opacity leads to a smooth transition as the slider is moved.

DISCLAIMER

The data and maps in this tool illustrate the scale of potential flooding, not the exact location, and do not account for erosion, subsidence, or future construction. Water levels are shown as they would appear during the highest high tides (excludes wind driven tides), also known as MHHW (mean higher high water – see http://co-ops.nos.noaa.gov/datum_options.html for a definition).The data and maps in this tool are provided "as is," without warranty to their performance, merchantable state, or fitness for any particular purpose. The entire risk

associated with the results and performance of these data is assumed by the user. This tool should be used strictly as a reference tool and not for navigation, permitting, or other legal purposes.

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