

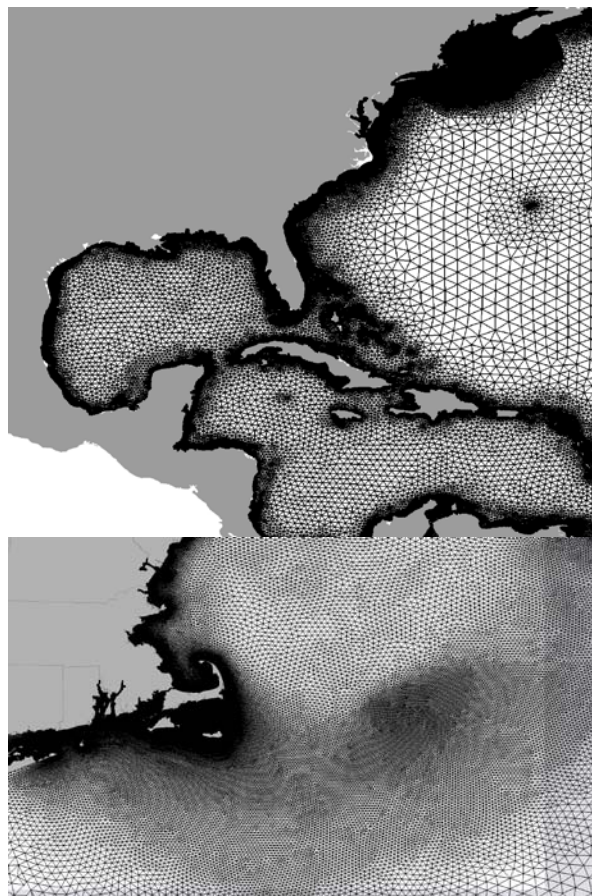
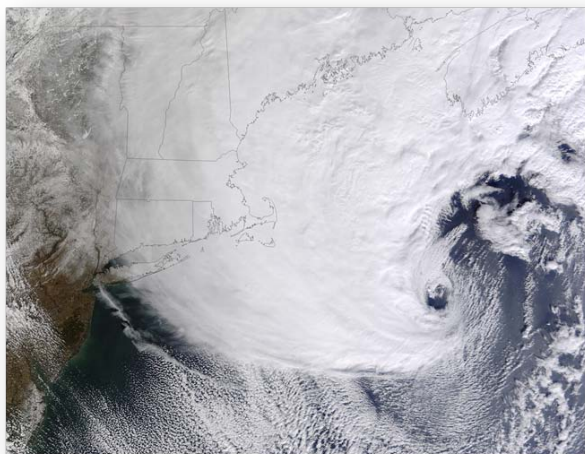
MassDOT – FHWA Pilot Project for Climate Change and Extreme Weather Vulnerability Assessments for the Central Artery, Boston, MA

Project Characteristics:

- *Sea Level Rise Assessment and Projections*
- *Development of Storm Climatology for 20th and 21st Century*
- *Coupled Wave and Hydrodynamic*
- *Combined Sea Level Rise and Storm Surge Risk to critical infrastructure and Assets*
- *Sustainable Coastal Engineering Alternatives*
- *Cost Estimations for Engineering Alternatives*
- *Recommended, Phased Engineering Adaptations for Sea Level Rise*

Woods Hole Group was a key team member for a technically advanced, leading-edge pilot project for the Federal Highway Administration evaluating the vulnerability to sea level rise and extreme weather events for the Central Artery in Boston, MA. The project incorporated a new systems-level vulnerability assessment to help evaluate adaptation options to reduce risk to specific assets.

The project also is geared toward integrating climate change vulnerability into MassDOT and FHWA overall practices. A highly resolved, numerical processes model was developed to assess the combined impact of sea level rise, storm events (tropical and extra-tropical), winds, tides, and waves.



Results from the model were used to assess risk for assets throughout the City of Boston, and subsequently to investigate adaptation options to reduce the identified vulnerabilities. Results also are helping to establish an emergency response plan for tunnel protection and/or shutdown.

The investigation included a cost benefit analysis, which provided MassDOT information to help select the most efficient method(s) for protecting valuable existing assets against today's weather events as well as future climate impacts. Climate scenarios and combined storm surge and sea level rise were developed for current day, 2070, and 2100.