

PROJECT OVERVIEW REPORT

1. UTC Identifying Number
69A3551847102
2. Center Identifying Number
CAIT-UTC-REG33
3. Project Title
Real-Time Prediction of Storm Surge and Wave Loading on Coastal Bridges
4. Principal Investigator & Contact Information
Teng Wu
Associate Professor
University at Buffalo
226 Ketter Hall
Buffalo, NY 14260
5. Rutgers/CAIT Project Manager
Patrick Szary, Ph.D.
6. Customer Principal
Matt Carter, Global Lead, Long-Span Bridges
Arup
77 Water Street
New York, NY10005
7. Project Description
According to FHWA, almost 36,000 bridges are located within 15 miles of the United States coastline. Many of these coastal bridges are vulnerable to storm surge and hurricane wave forces, and this is expected to worsen with rising sea levels associated with changing climate. The primary goal of this proposal is to lay the ground work for the development of tools and techniques for rapid prediction of storm surge and wave effects on coastal bridges.
8. Implementation of Research Outcomes (or why not implemented)
The intended outcome of the project is to develop a computational platform for the rapid prediction of joint storm surge and wave loadings on coastal bridges, using storm parameters (e.g., size, intensity and translational speed) as inputs. The computational tool could also be used in real time by first responders in the event of storm-surge flooding due to extreme wind storms such as hurricanes and Nor'easters, by DOTs and state and local Offices of Emergency Services for scenario planning, and by engineers and planners for risk assessment.

9. Impacts/Benefits of Implementation (actual, not anticipated)
To Be Determined

10. Dates and Budget

Start date: 1/1/2020

End date: 12/31/2020

UTC (CAIT) Dollars: \$85,632

Cost Sharing: \$89,624

Total Dollars: \$176,256

11. Keywords

coastal bridge, storm surge, wave loading, multiple hazards, hurricane scenario

12. Web Links (Reports and Project Website)

<https://cait.rutgers.edu/research/real-time-prediction-of-storm-surge-and-wave-loading-on-coastal-bridges/>