ASCE
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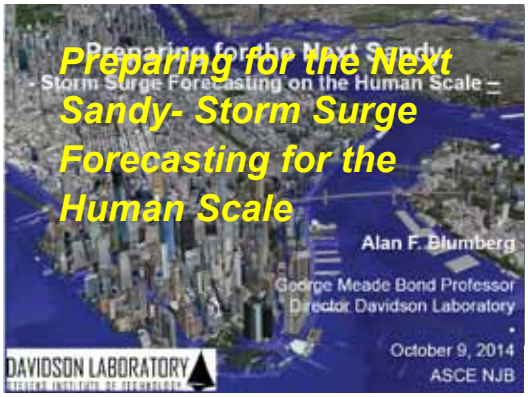
North Jersey Chapter PRESENTS:



Presented by:
Alan F. Blumberg, Ph.D.
George Meade Bond Professor and
Director, Davidson Laboratory
Stevens Institute of Technology

Coastal Scientist/Regional Technical Specialist
USACE National Planning Center for Coastal Storm Risk Management/Philadelphia District

Presented by:
J. Bailey Smith

Date:	**October 9, 2014**
Time:	Registration and Reception from **5:30 to 6:30 pm**, Dinner at **6:30 pm** with presentation to follow
Location:	Crowne Plaza, 690 Route 46 East, Fairfield, NJ
Cost:	$65 for ASCE members/ $70 for guests/ $60 Government Employees/ $40 for students Make checks payable to ASCE North Jersey Branch
RSVP:	Please RSVP by October 7 by visiting our website and registering online at http://ascenjb-copri.eventbrite.com

Limited seats are available and will be reserved on first come first serve basis.

The presentations will provide us a fresh view of recovery efforts within NY/NJ area after Super Storm Sandy. ***See Abstracts on next page.***

This program is under review for 2 PDH hours total.

Thank you for your supporting your local Chapter!

Preparing for the Next Sandy
Storm Surge Forecasting on the Human Scale –

Presented by:
Alan F. Blumberg
Davidson Laboratory
Stevens Institute of Technology
Hoboken, NJ

Abstract

Hurricane Sandy caused extensive flooding in the coastal urban waters of New Jersey, New York and Connecticut that exceeded almost all of the tide gauge records in these states and locally exceeded estimated flood levels for hurricanes that made landfall over two prior centuries. Numerical model storm surge forecasts of these areas made by many different storm surge modeling groups were generally lower than the observed elevations. Forecast model experiments using the New York Harbor Observing and Forecasting System (NYHOPS) were conducted to examine several potential sources of the low bias. The experiments show that the meteorological forecasts that varied substantially with Sandy, have a major impact on storm surge forecast accuracy. This pertains to both the relatively slow (2-3 days) geostrophic buildup of Sandy's regional forerunner surge, and to the locally fast downwind surge during Sandy's peak. The simulation made with the best available wind forecast produced the most accurate water level forecast with the lowest RMS error average across five stations (0.16 m) and the best forecast skill (0.99).

To understand the flood pathways and inundation depths during Sandy, a street by street, neighborhood scale, ultra high-resolution, hydrodynamic model was developed and validated for the urban coastal waters of New Jersey along the Hudson River waterfront opposite New York City. This model has a constant 6 m resolution and is nested within the much larger geographic covering NYHOPS whose domain includes the continental shelf and inland tidal regions from Maryland to Cape Cod. The fine model grid resolution combined with high-resolution LiDAR elevation data permits a street by street focus on the inundation modeling. Robust wetting and drying of land in the model physics provides for the dynamic prediction of flood elevations and velocities across land features during inundation events. The model has been validated using 56 water marks provided via the USGS and an extensive crowd sourcing effort consisting of photos, videos and personal stories. The validation has clearly shown that the model is capable of computing overland water elevations on a street by street basis quite accurately.

The model is now being used to assess various flood preventing interventions and as the basis of a forecast system for the next meteorological event.

Summary
of the
North Atlantic Coast Comprehensive Study (NACCS)

Presented by:
J. Bailey Smith
Coastal Scientist/Regional Technical Specialist
USACE National Planning Center for Coastal Storm Risk Management/Philadelphia District

The US Congress authorized the Secretary to conduct a comprehensive study to address the flood risks of vulnerable coastal populations in areas that were affected by Hurricane Sandy within the boundaries of the North Atlantic Division of the Corps by using up to $20 million where unused funds available for future USACE studies.

NACCS is to address :

1) Flood risks of vulnerable coastal populations affected by Hurricane Sandy within the North Atlantic Division
2) Ensure study is consistent with interagency efforts
3) Identify institutional barriers and develop strategies
4) Identify activities and actions warranting additional analysis

The goals of the Comprehensive Study are to:

1) Provide risk reduction strategies—reduce risk to which vulnerable coastal populations are subject
2) Promote coastal resilient communities—ensure a sustainable and robust coastal landscape system—considering future sea level rise and climate change scenarios—to reduce risk to vulnerable population, property, ecosystems, and infrastructure.

The $20 million Comprehensive Study is due to congress in January 2015. The final study will include a coastal framework as well as storm suite modeling, coastal GIS analysis, and related evaluations, for the affected coastlines. The study will identify existing nature-based infrastructure, include an evaluation of the performance of nature-based infrastructure during Hurricane Sandy and other recent storms, and consider the performance of nature-based infrastructure in reducing the impacts of coastal storm flooding, as well as other impacts at a larger scale and as a system.

This presentation will provide an overview of the NACCS and inform the audience on the upcoming schedule. Further information on the study can be found at the website below:

http://www.nad.usace.army.mil/CompStudy