

# FEMA Region II NY and NJ Coastal Restudy Newsletter

JULY 2020 UPDATE



## WHAT IS THE NY & NJ COASTAL RESTUDY?

The NY and NJ Coastal Restudy will reexamine the flood hazards for coastal New York and New Jersey. New storm surge analysis and wave modeling will produce revised flood maps for many coastal communities in the study area. The Federal Emergency Management Agency (FEMA) is conducting the restudy in response to New York City's 2015 appeal of the 2013-2014 preliminary Flood Insurance Rate Maps (FIRMs) for the area.



## THE IMPACTS OF COVID-19

The COVID-19 pandemic is of ongoing and critical concern across the Nation, including in communities throughout the NY and NJ Coastal Restudy area. While the COVID-19 response is FEMA's top priority, we, as an agency, are continuing to advance ongoing initiatives and studies that support our mission to help people before, during, and after disasters.

Even amidst an emergency like this pandemic, knowing how floods and other natural disasters can impact your community—and how you can take action to prepare and reduce those risks—remains vitally important. Our team is committed to keeping the flood mapping process moving and regularly communicating updates on our efforts.

The COVID-19 pandemic has delayed two components of the Coastal Restudy that were originally planned for spring and summer 2020:



**FIELD RECONNAISSANCE** supporting the overland wave modeling is delayed until it becomes safe for the study team to travel. During field reconnaissance, members of the study team travel throughout the study area to collect data and better understand local conditions. Their efforts will be focused on places where new transects have been added or where changes to the coastline have occurred since data was collected for the 2013-2014 preliminary FIRMs. The information collected allows the study team to fine-tune the overland wave modeling.



**IN-PERSON OUTREACH** with each of the study area communities was initially planned for summer 2020 to discuss study progress and the completion of Intermediate Data Submittal (IDS) 2. These meetings will likely be held virtually and resume this fall.

## IDS 2 – MODEL VALIDATION

The study team is working to complete the second of five IDS reports. This report is an important milestone in the study documentation and the study team’s internal quality management plan. IDS 2 documents validation of the storm surge analysis and wave model.

In general, during model validation the team checks to verify the model works. For instance, measured data collected from highwater marks during historic events are compared to storm surge elevations produced by the model. For the NY and NJ Coastal Restudy, the model results were compared to:

- ▶ Tides measured at **74 tide stations** located throughout the study area for significant flood events;
- ▶ High water marks, flood levels, and wave conditions from **five historical hurricanes** (including Hurricane Sandy); and
- ▶ High water marks, flood levels, and wave conditions from **five historical nor’easters**.

Based on the results of this comparison, the modeling inputs are revised as needed until the modeled results align with observed conditions. Once the model is validated and IDS 2 is approved by FEMA and the Coastal Advisory Panel (CAP), the study team will run the model hundreds of times, considering various possible storm scenarios. The results of these model runs are ultimately combined to create the 1-percent-annual-chance stillwater elevation (SWEL) surface which is a primary input for determining the base flood elevations shown on flood maps.

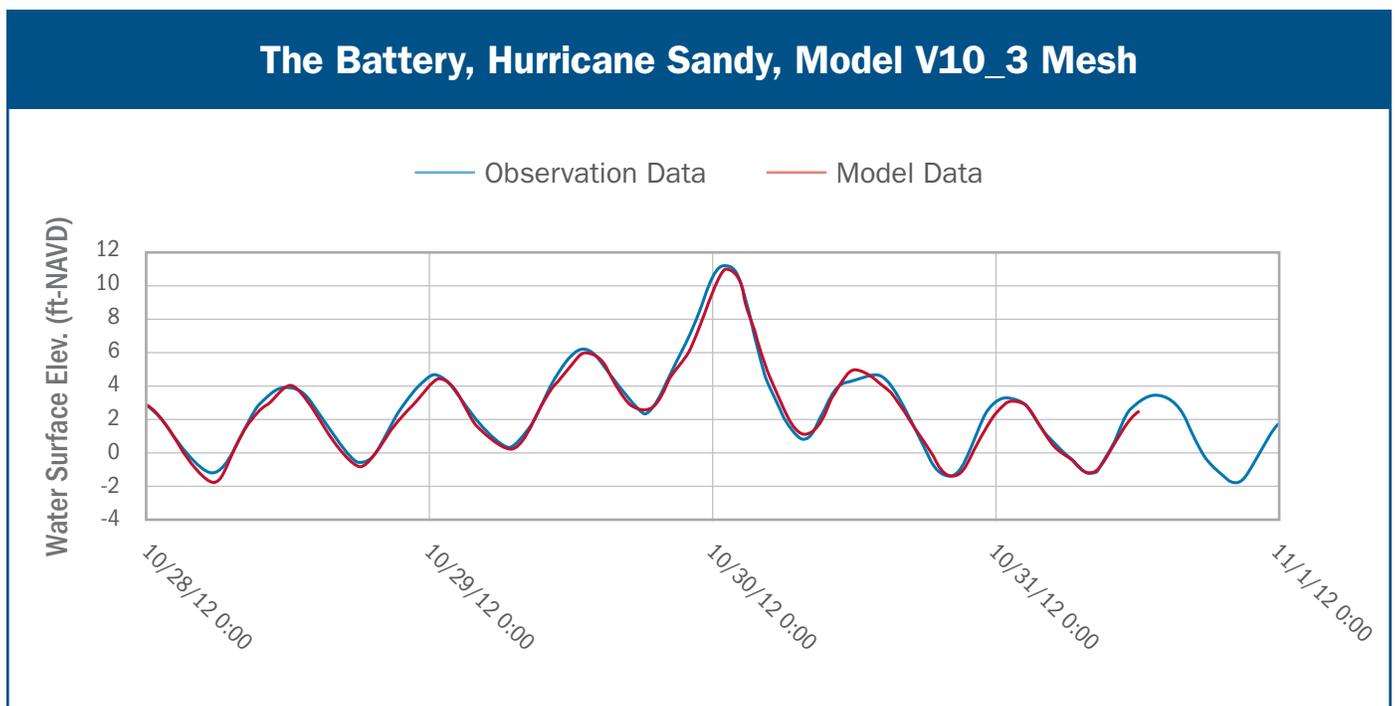


Figure 1. Model validation results showing how modeled data aligns well with water levels observed during Hurricane Sandy.

## STUDY TEAM SPOTLIGHT – INTERVIEWS WITH THE EXPERTS



### LAUREN SCHMIED, PE — TECHNICAL ADVISOR

Lauren Schmied, PE is a coastal engineer with FEMA's national coastal team. Since 2006, Lauren has worked on FEMA coastal studies and is currently a technical advisor for Region II on the NY and NJ Coastal Restudy. Lauren is intimately familiar with the details of the Restudy, having served as chair of the board during the preliminary map appeal review (2015).

#### **1 FEMA'S COASTAL MAPPING PROCESS CAN BE VERY LONG. WHAT'S YOUR FAVORITE STAGE IN THE PROCESS AND WHY DOES IT TAKE SO LONG?**

My favorite stage in FEMA's coastal mapping process is the very beginning of the project. At this stage, the study team spends time getting to know the study region and the different factors influencing risk along that coast. Coastal studies can be especially complicated because the hazards driving risk can vary as you move along the coastline. In NY and NJ, you have to consider hurricanes, Nor'easters, erosion, dunes, back bay flooding, the impacts of dense infrastructure, and more. It takes time to collect and analyze the information you need to incorporate all those factors into the study. But, if you do it right, your study results can help communities drive an effective risk management approach.

#### **2 LOOKING FORWARD (TO IDS 2 AND BEYOND), ARE THERE OPPORTUNITIES FOR FEMA TO IMPROVE ITS PROCESS AND ACTIVELY ENGAGING STAKEHOLDERS IN THE REGION? HOW?**

FEMA is committed to stakeholder engagement, that's why we've worked with the CAP every step of the way. That engagement will continue throughout the life of the process. As we get into IDS 2 and beyond, and we are developing products, there are many opportunities for engagement that can help us better understand what our stakeholders need to address their risk. At the same time, continued engagement can help stakeholders understand, and hopefully develop trust of, our process and how we're making decisions. Creating and maintaining that partnership is important for FEMA.

#### **3 HOW ARE THE PROJECT-SPECIFIC NEEDS OF REGION II AND THE RESTUDY BEING BALANCED WITH NATIONAL GUIDANCE AND STANDARDS?**

Any time FEMA creates a FIRM, national guidance and standards are followed. Every coastline and study has slight differences in the physical processes impacting them and the Guidance and Standards allow engineers to account for that. No one-size-fits-all solution will work for every coastline. You will see differences in studies because of differences in the physical environment. The important thing is that in every study, we rigorously document and describe every decision made throughout the process.



## STUDY TEAM SPOTLIGHT – INTERVIEWS WITH THE EXPERTS



### DON RESIO, PHD — TECHNICAL STUDY TEAM MEMBER

After a long and distinguished career with the U.S. Army Corps of Engineers Engineering Research and Development Center and Coastal Hydraulics Lab in Vicksburg, Mississippi, Dr. Don Resio now serves as a University of North Florida (UNF) professor of ocean engineering and director of the Taylor Engineering Research Institute at UNF. He is a member of the technical study team.

#### **1 FEMA'S RISK MAP PROGRAM HAS BEEN UPDATING MODELING AND MAPPING OF THE UNITED STATES' POPULATED COASTLINES SINCE HURRICANE KATRINA MADE LANDFALL IN AUGUST 2005. SINCE KATRINA, WHAT WOULD YOU SAY HAS BEEN THE BIGGEST ADVANCEMENT IN HURRICANE STORM SURGE MODELING?**

There are many advancements that come to mind (like high-speed computer systems), but I would think the technological advancements in computer modeling are significant. We can now run coupled 2-dimensional models of hurricane storm surge (ADCIRC) with waves (SWAN) to capture the physical forces and processes of a hurricane. Running coupled surge and wave models also improves the efficiency of the modeling effort.

#### **2 AS A MEMBER OF THE TECHNICAL STUDY TEAM, WHAT ARE THE CHALLENGES OF MODELING A UNIQUE SHORELINE IN A HIGHLY URBANIZED ENVIRONMENT?**

New York City comes to mind first, where we have a large and diverse urban environment that needs to be modeled accurately for its constituents. It will be challenging because the study team needs to fully document the study process and decisions for such a large multi-state regional study. The project's Coastal Advisory Panel of coastal stakeholders and subject matter experts helps provide study oversight and maintain technical quality as a top priority.

#### **3 HOW IS THE STUDY TEAM WORKING TO ADDRESS THESE CHALLENGES, SUCH AS ACCOUNTING FOR LARGE-SCALE REGIONAL CHANGES IN COASTLINE ORIENTATION AND HOW THAT INFLUENCES MODELING COASTAL FLOODING RISKS AT A LOCAL LEVEL?**

The stakes are much higher with such a huge regional population living in high density developments. The gauge of a successful study can be the ability of the modeling to demonstrate the capacity to account for the geographical differences of surge flooding between NY and NJ open ocean coastlines, inland bays, and rivers. The consequences of NY and NJ modeling decisions put greater demands on the study team and elevates accountability of each action.

## WHO MAY I CONTACT FOR MORE INFORMATION?

### FEMA REGION II

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