



**U.S Coastal Research Program (USCRP)  
Storm Processes and Impacts Workshop  
April 16-18, 2018**



**Hilton St. Petersburg Bayfront  
St. Petersburg, Florida**





## U.S Coastal Research Program Storm Processes and Impacts Workshop

Hilton St. Petersburg Bayfront,  
333 1<sup>st</sup> Street South, St. Petersburg, Florida 33701  
April 16-18, 2018

### Agenda

#### Workshop Objective:

This workshop (<https://uscoastalresearch.org/storms-workshop>) aims to bring together academics, government, and coastal and emergency managers from all geographic areas to synthesize our present capabilities for understanding, representing, and simulating storm processes and storm response that extends from offshore to the coastline and determine/prioritize where advancements are needed. An objective is to hear about challenges and needs from emergency managers and practitioners to identify the most pressing research requirements. The meeting will include an opportunity to for academics to submit research proposals based on the workshop outcomes to the U.S. Coastal Research Program.

#### April 16: Afternoon – Marine Science Open House

*Optional (registration required) showcase of St. Petersburg Marine Science capabilities during tours at the USGS St. Petersburg Coastal and Marine Science Center, the FWC Fish and Wildlife Research Institute, and the University of South Florida College of Marine Science.*

**5:30 pm Evening Welcome Reception (all welcome)**  
**Marine Exploration Center**  
**Port of St. Petersburg - Bayboro Harbor**  
**250 8<sup>th</sup> Ave SE**  
**Saint Petersburg, FL 33701**  
**(0.6 mi from hotel)**

## Agenda

### April 17: Defining the Challenges of Predicting Storm Impacts

**Objective:**

*Learn about challenges involved in predicting and managing storm impacts from different perspectives. Day 1 focuses on the applied side. Presenters include local coastal managers, emergency managers, state or regional agencies, academics, and those Federal agency scientists/engineers responsible for communicating the science or model results to the public. Define challenges and societal implications*

**Approach:**

*Use break-out groups to synthesize the different perspectives' challenges and societal implications*

**Session Chair: Joe Long, Research Oceanographer, USGS, St. Petersburg**

- 8:20 Welcome Address  
**Mayor Rick Kriseman, City of St. Petersburg, Florida (FL)**
- 8:30 Statement of objectives  
**Jeff Lillycrop, Technical Director, Civil Works RD&T USACE**  
**Nicole Elko, Science Director, American Shore and Beach Preservation Association**
- 8:45 National Hurricane Center storm surge forecasts (on behalf of the National Hurricane Program)  
**Donald Cresitello, Senior Coastal Planner, North Atlantic Division, USACE**
- 9:05 Emergency management challenges in planning and preparing for storm impacts  
**Andrew Sussman, Hurricane Program Manager, FL Dept. of Emergency Management**
- 9:25 **Invigorating Break**
- 9:40 An introduction to the successes and lessons learned of implementing National information at the local scale  
**Sally Bishop, Director, Pinellas County Emergency Management, FL**
- 10:00 Coastal Environmental Risk Index: small-scale modeling to predict impacts  
**Grover Fugate, Executive Director, Coastal Resources Management Council, State of Rhode Island**
- 10:20 Urban challenges in planning, preparing and responding to storm surge  
**Tom Herrington, Associate Director, Monmouth University, Urban Coast Institute, NJ**
- 10:40 **Fast Break**

## Agenda

(April 17, continued)

**Session Chair: Casey Dietrich, Assistant Professor, North Carolina State University**

- 10:50** Translating storm forecasts to the local area: panel discussion  
**Brian LaMarre, Meteorologist-in-Charge, Tampa Bay Area NOAA National Weather Service (NWS)**  
**Laurie Hogan, Hydrologist, NOAA/NWS Eastern Region Headquarters**  
**Dan Reilly, Warning Coordination Meteorologist, NWS Houston/Galveston (by webinar)**
- 11:30** USGS Total Water Level and Coastal Change Forecasts  
**Joe Long, Research Oceanographer, USGS St. Petersburg**
- 11:45** FEMA perspective: coastal flood mapping requirements  
**Christina Lindemer, Coastal Engineer, FEMA HQ**
- 12:00** **Lunch on your own**
- 1:20** How a small beach community managed the impact of Hurricane Matthew before, during, and after the storm  
**Mayor Jane Darby, Edisto Beach, SC**
- 1:40** Beach geomorphological response from Hurricane Maria in Puerto Rico  
**Maritza Barreto, Universidad de Puerto Rico, Rio Piedras**
- 2:00** Assessing rural Alaska's coastal storm impacts with limited data  
**Jacquelyn Overbeck, Coastal Hazards Program Manager, State of Alaska**
- 2:20** Hurricane perceptions of coastal connecticut residents  
**Jennifer Marlon, Research Scientist, Yale University**
- Session Chair: Mary Cialone, USACE, Engineer Research Development Center**
- 2:40** **Charge to breakout groups:**  
*Identify the challenges involved in predicting storm impacts*
- 2:50** **Break**
- 3:00** **Convene in breakout groups (see pg. 6)**
- 4:00** **Break**
- 4:15** **Reconvene in plenary**  
*Report out from breakout groups: Present top 3 prediction challenges*
- 5:00** **No-host happy hour**  
**The Dali Bar, hotel lobby**

## Agenda

### April 18: Science toward understanding storm processes and impacts

**Objective:**

*Assess the extent to which scientific knowledge can be applied to the challenges from Day 1*

**Approach:**

*Learn how researchers are modeling/predicting storm processes and impacts. In breakout groups, discuss research needs, scientific management solutions, and community needs.*

**Session Chair: Leighann Brandt, Geologist, BOEM**

- 8:20** Effectively issuing warnings during Hurricane Maria when observations and radar fails  
**Ernesto Rodriguez, NOAA/NWS Weather Forecast Office, Carolina, PR**
- 8:40** Interconnectivities between shoreline and structural vulnerabilities during extreme events  
**Victoria Tomiczek Johnson, Assistant Professor, U.S. Naval Academy**
- 9:00** Process-based modeling of storm impacts  
**Arjen Luijendijk, Sr. Coastal Engineer, Deltares**
- 9:20** **Invigorating Break**
- 9:35** ADCIRC modeling of storm surge  
**Rick Luetlich, Director, UNC Institute of Marine Science**
- 9:55** U.S. Coastal Research Program Initiatives update: DUNEX and Modeling Test Bed  
**Britt Raubenheimer, Sr. Scientist, Woods Hole Oceanographic Institution**  
**Mary Cialone, USACE, Engineer Research Development Center**
- 10:15** Dune fragilities for risk-informed decision support: a probabilistic framework to estimate storm impacts on dunes  
**Dan Cox, Professor, Civil & Construction Engineering, Oregon State University**
- 10:35** **Fast Break**
- 10:45** Real life decision support experiences with ADCIRC  
**Jason Fleming, Chief Engineer, Seahorse Coastal Consulting, NC**
- 11:05** Beyond dunes: storm impacts on cliffs  
**Patrick Limber, Research Geologist, USGS Santa Cruz**
- 11:25** Measuring coastal impacts during the storm  
**Andrew Kennedy, Director, Coastal Hydraulics Lab, Notre Dame**
- 11:45** Preliminary observations from pre-storm rapid deployments  
**Jack Puleo, Professor, Civil & Environmental Engineering, University of Delaware**

## Agenda

(April 18, continued)

- 12:00**    **Charge to breakout groups**  
*Assess the extent to which existing or new scientific capabilities can be applied to the challenges from Day 1*
- Lunch on your own**
- Session Chair: Nicole Elko, ASBPA**
- 1:25**    **Convene in breakout groups (see pg 7)**
- 2:25**    **Break**
- 2:40**    **Reconvene in plenary**  
*Report out from breakout groups: Present top 3 research needs*
- 3:10**    **Large group discussion**  
*Determine pathways to improved predictions*
- 4:00**    **Adjourn**
- 4:00**    **Technology Challenge Grant Information Session (optional)**  
*A competition to offer several grants to directly support academic graduate student research. The grants will be awarded to those proposals which investigate one of the top challenges identified during the workshop and partner with a practitioner or manager. Proposals will be due by June 2018 with announcement of results before the end of the year. The performance period will be one year with an expectation that the awardees will present preliminary findings at ASBPA's annual meeting during a dedicated session in October 2020 and publish results in a dedicated issue of Shore and Beach.*

## Breakout Group Charge

Tuesday, April 17, 2018

### *Prediction Challenges*

**3:00 p.m.**

#### **Introductions**

Discussion: Identify the challenges involved in predicting storm impacts

- ◆ What are the main challenges in predicting storm impacts?
- ◆ What are the societal implications and challenges of communicating storm impact risk?
- ◆ What information or tools are practitioners lacking?

**3:45 p.m.**

#### **Prioritize the listed challenges**

Product: List of top 3 prediction challenges

**4:00            BREAK**

**4:15 p.m.**

#### **Reconvene in plenary**

Report out from breakout groups: Present top 3 prediction challenges



## Breakout Group Charge

April 18, 2018

### *Research Needs*

**1:25 p.m.**

Assess the extent to which existing or new scientific capabilities can be applied to the challenges from Day 1

Materials: List of top challenges

- ◆ What research questions need to be answered to allow for improved predictions?
- ◆ How to digest for public information dissemination?
- ◆ What research infrastructure is needed (observations, computing power)?

**2:10 p.m.**

### **Prioritize the listed research questions/needs**

Product: List of top 3 research needs

**2:25 BREAK**

**2:40**

### **Reconvene in plenary**

Report out from breakout groups: Present top 3 research needs

**3:10**

### **Large group discussion**

Determine pathways to improved predictions

Materials: Top prediction challenges and top research needs

- ◆ Do challenges and research needs align for improved predictions?
- ◆ What common tools are needed (communication strategies, instrumentation)?
- ◆ What our roles (state & federal agencies, academics, community managers)?  
How do we foster coordination?

Products: Recommendations on pathways to improved predictions. Establishment of a technical community to promote and advance best prediction and communication practices on a national scale. Meeting report writing team.

## Breakout Groups

### Group 1

**Moderator:** Talea Mayo, Assistant Professor, University of Central Florida

**Scribe:** Drew Condon, U.S. Army Corps of Engineers, Jacksonville District

### Group 2

**Moderator:** Libby Carnahan, Florida Sea Grant agent for IFAS Extension

**Scribe:** Matthew Conlin, Ph.D. Student, University of Florida

### Group 3

**Moderator:** Anna Wargula, Assistant Professor, U.S. Naval Academy

**Scribe:** Mathieu Vallee, Ph.D. Student, University of South Florida

### Group 4

**Moderator:** Robert Weaver, Associate Professor, Florida Institute of Technology

**Scribe:** Kara Doran, Physical Scientist, USGS St. Petersburg

### Group 5

**Moderator:** Jon Miller, Associate Professor, Stevens Institute of Technology

**Scribe:** Brandon Boyd, Researcher, USACE ERDC Coastal & Hydraulics Lab

## Notes

