

# DHS S&T Flood Apex Recap

Sandra Knight

April 21, 2021

<https://www.dhs.gov/science-and-technology/flood-apex>

# Flood Apex Program

- DHS S&T Created program in request by FEMA
- Began in 2015
- Intended to be a finite program (5 yr - \$25 mil)
- Grew to \$40 mil and extended to transition products into 2021

Designed to bring together new and emerging technologies to increase communities' resilience to flood disasters and provide flood predictive analytic tools.

# Last program update at the RRB meeting August 2020

## Program Title: Flood Apex

Division/Group: FRD/MCS

PM: David Alexander



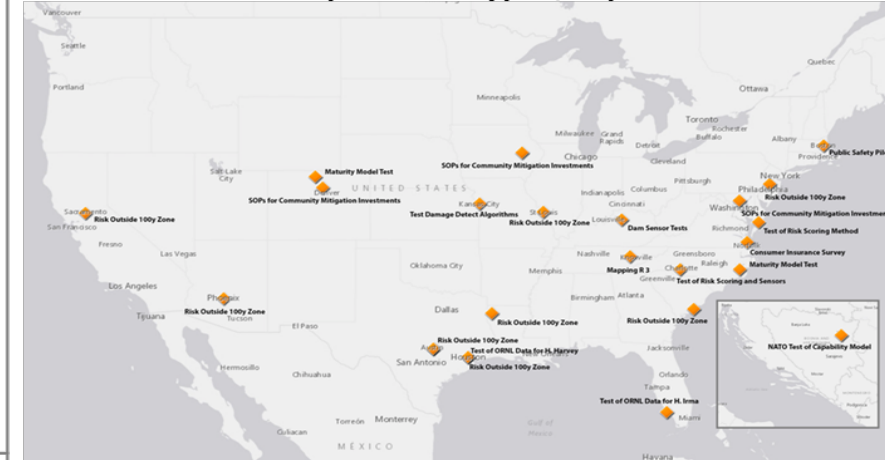
### Program Description

Flood Apex focuses on three goals for improving the performance of the flood management community. Each of these can be addressed to a significant extent by transitioning new technologies, new analytics and new policy approaches that leverage the R&D advances that Flood Apex is sponsoring/partnering.

- A. Improve Disaster Response and Event Management
- B. Enhance Individual and Business Flood Resilience
- C. Enhance Community Resilience

Research has now been largely completed. The program will be expanding its community pilots and operational experiments to support final R&D and transition activities in alignment with the program lifecycle. For transition, Flood Apex is working intensively with FEMA and other transition partners to plan for hand-offs of Flood Apex material solutions and knowledge products

### Locations of Flood Apex Prototypes, Experiments and Tests



TRL at Start: N/A

TRL at Project Completion: N/A

Sample Project Performers: MIT-LL, Radiant, ORNL, Wharton, CMSWS, Kentucky DOW

Planned Demos & Deliverables / Transitions	Target Date
1. Observed Flood Extents Product	FY20 Q4
2. Web-based Hurrevac	FY20 Q4
3. SBIR IoT Flood Sensors	FY20 Q3
4. National Structures Inventory	FY21 Q4
5. Future of Flood Insurance	FY20 Q1
6. Flood Proofing Standards	FY20 Q4
7. DSS-WISE Enhancements	FY19 Q4
8. Dam Monitoring/Reporting Criteria/Recommendations	FY19 Q4

Transition Products*
<ul style="list-style-type: none"> <li>• HAZUS Software Tsunami Model (FY17 Q2) - Completed</li> <li>• Wharton Flood Insurance Market Report (FY17 Q3) - Completed</li> <li>• Xchange CORE (SABER) (FY19 Q3)</li> </ul>
*Only products transitioned thru FY19 Q1.
<b>R&amp;D Strategy Priority Area:</b> Structure Level Risk Scoring, Remote Sensing for Flood Decision Support, Community Threat & Mitigation Planning
<b>Letter of Intention/TTA Status:</b> TBD as required

Cost Projection & Milestones	FY14	FY15	FY16	FY17	FY18	FY19	FY20	Tot. FY14-20 (\$M)
Allocated Funding (\$M)*		\$5M	\$5M	\$5M	\$5M	\$10M	\$10M	\$40M
Demos/Go/No-Go Decision	◆			◆	◆	◆		
Deliverables/Transitions	▲					▲▲▲▲▲▲	▲▲	

- Cost
- Schedule
- Technical

\* Only Congressionally Appropriated Funding Levels

## Activities funded by Flood Apex and executed through the CRC

- The Research Review Board
- Rethinking Flood Analytics Workshop with RENCi
- Coordination of Landscape Review with RAND
- Hurricane Floyd/Matthew Empirical Analysis Study- AECOM
- Hydroanalytic Evaluation Study – WaterWonks

[https://coastalresiliencecenter.unc.edu/  
crc-projects/flood-apex/](https://coastalresiliencecenter.unc.edu/crc-projects/flood-apex/)

## The Flood Apex Research Review Board The Flood Expert Dream Team!

- Greg Baecher, Univ of Maryland
- Doug Bellomo, AECOM
- Shelby Bensi, Univ of Maryland
- Chad Berginnis, ASFPM
- Sam Brody, Texas A&M, Galveston
- Dave Canaan, Mecklenburg County Storm Water
- DHS-CISA
- Jeff Czajkowski, NAIC
- FEMA
- Joseph Fiksel, Ohio State Univ
- NOAA and WH-OSTP
- Sandra Knight, WaterWonks LLC
- Rick Luettich, Univ of North Carolina
- David Maidment, Univ of Texas
- FEMA
- NIST
- Phetmano Phannavong, Atkins
- John Pine, Appalachian State Univ (ret)
- Ashley Ross, Texas A&M, Galveston
- Kathleen Schaefer, PhD program, UC Davis
- Katherine Schlef, Western NE Univ
- Gavin Smith, NC State Univ
- ERDC
- Larry Weber, Univ of Iowa