NIST 2020 Disaster Resilience Symposium

By Kevin S. Moore, Chair, Resilience Committee

On 28 July 2020 and 29 July 2020, NIST presented its third annual symposium, featuring the Disaster Resilience Grant Research Program recipients from 2017 and 2019. This virtual event featured Grant Research Program recipients presenting their research and findings from the work funded by NIST research awards, which include:

- Fire related disaster and failure studies,
- Work funded through the National Earthquake Hazards Reduction Program,
- Work associated with the Wind Impact Reduction project,
- Reduced Ignition of Building Components in Wildland-Urban Interface (WUI) Fires.

Keynote speakers included Birgitte Messerschmidt, Director of Applied Research at National Fire Protection Association (NFPA) and Erik Rasmussen, Senior Research Scientist at the Cooperative Institute for Mesoscale Meteorological Studies.

Ms. Messerschmidt's compelling presentation describes increasing losses related to wildfires, including the significant financial drain that WUI fires present to the nation. While these losses are incredibly costly, state-of-the-art techniques effective for preventing damage has remained static and highly ineffective. The call for further research is strong and creative solutions must be found to decrease the staggering losses that continue to mount year over year.

Dr. Rasmussen's presentation focused on his work related to severe storms, prediction of these storms and tornadogenesis (the source of tornadoes). His work shows how little we know about extreme wind hazards, meaning there is not much for us to apply to our work when considering extreme wind hazards. He goes on to state how much research is needed to be better at predicting and protecting against extreme weather events.

Chris Cerino, SEAONY Member of the NCSEA Resilience Committee, attended one of the presentations and provided the following review:

Coastal Inundation Events in Developed Regions

This project focused on the effects of flood load forces within an array of buildings. As waves and currents travel toward a network of buildings, there are shielding effects that happen on the trailing rows. Currently the ASCE 7 Flood Load Chapter does not account for these effects, overestimating the loads in more dense urban environments. The research is intended to influence future editions of ASCE 7 so that designers can better evaluate structures in an urban environment.

Initial research instrumented a scale model of wave and currents in the laboratory at Oregon State University. This data was used to validate similar conditions in the OpenFOAM program. Working with representatives from ATC and two design professionals, a draft wave load reduction factor table was developed and is being presented to the ASCE 7-22 Flood Load Committee for review and incorporation into the standard.

For more information on the NIST Symposium, including grant recipients, program research and presentation recordings, please go to: **https://www.nist.gov/news-events/events/2020/07/virtual-2020-nist-disaster-resilience-symposium**