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ODU Researchers Help Prepare for a World with Simultaneous Pandemic and Hurricanes

May 14, 2020

As the world grapples with the worst pandemic in more than a century, residents of Hampton Roads are well aware that life could soon get even more complicated. Hurricane season begins June 1, and forecasts are for it to be a particularly active year in the Atlantic Ocean.

Two Old Dominion University modeling and simulation researchers are already examining the competing imperatives that preparing for a storm while dealing with the COVID-19 crisis would create.

"The coupling of a hurricane event within the lifecycle of the current pandemic is a real possibility that may have far-reaching implications for our nation's readiness," said Joshua Behr, Old Dominion University's Social Science & Policy program manager for the Institute for Coastal Adaptation and Resilience (ICAR) and a research associate professor at the Virginia Modeling, Analysis and Simulation Center (VMASC).

Rafael Diaz, VMASC research associate professor, notes also that threats to the nation's supply chain alone are frightening to consider.

"It is already challenging to understand the complexities and effects of COVID-19 on availability of labor and materials on an industry like shipbuilding," Diaz said. "If we compound it with weather events, we have to think of unimaginable distress."

The researchers have authored a white paper for the Office of Naval Research highlighting the impact of COVID-19 on the backlog of shipbuilding and repair for the Navy, which by extension affects national readiness. The document proposes that novel simulation models be developed to help decisionmakers in the complex maritime shipbuilding, repair and maintenance ecosystem to minimize potential negative impacts of this compound threat.



Joshua Behr



Rafael Diaz

Behr and Diaz also have applied for a National Sciences Foundation (NSF) RAPID grant to gather data on how the health crisis may change evacuation behavior.

In addition, NSF and the Natural Hazards Center at the University of Colorado, Boulder, selected ODU to lead a national working group to consider questions of how to balance the competing risks of evacuation and sheltering of vulnerable and medically fragile populations during hurricanes.

One of the main challenges of dealing with both natural crises at once is the behaviors to mitigate one are at odds with what is needed for the other. Evacuation and public sheltering necessitate large gatherings of people in secure locations, something health experts say could result in spread of the virus.

The ODU researchers suggest messaging for evacuation and sheltering in local and state shelters may have to change to protect citizens and staff. Due to social distancing, the space for general and medically friendly shelters may have to increase to protect some of the most vulnerable citizens during a storm. In addition, there is a need to rapidly screen shelter-seekers for COVID-19 and have protocols in place to manage those with symptoms.

"The implications of these decisions are enormous, and should be considered now," Behr said.