

UMD and Resilinc Corp. create index of climate change risk to company supply chains

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Last year a series of severe weather events including the late-winter storm that hit the U.S. Northeast, followed by weather-related damage that closed the U.S.-Mexico Laredo border, and subsequent U.S. landfall hurricanes Harvey, Irma and Maria contributed to a doubling of global supply chain disruption and, for the first time, made the United States the region most-impacted by such disruption. These impacts, highlighted in a recent report, form part of the impetus for a new partnership between the University of Maryland and software firm Resilinc.

Researchers in UMD's Earth Systems Science Interdisciplinary Center (ESSIC) and in the Supply Chain Management Center of the Robert H. Smith School of Business have begun work on a prototype of a highly localized "Climate Change Variability/Vulnerability Index." This new research has been launched in light of the Resilinc report on 2017 impacts, and in the aftermath of massive damage caused by 2018 hurricanes Florence and Michael.

According to ESSIC Assistant Research Professor Michael Gerst, by early 2019, Resilinc will be able to disseminate UMD's new index as "a critical snapshot of the vulnerability to [climate](#) change of the supply chain of an individual business."

"Climate change varies greatly by location. Thus, the index will become even more important as it will seek to identify which supply chains are prone to the worst parts of a 1.5- or 2-degree Celsius global rise in temperature," Gerst said.

The need for this new index is underscored by the November 23rd release of a new U.S. National Climate Assessment that says: "Without substantial and sustained global mitigation and regional adaptation efforts, climate change is expected to cause growing losses to American infrastructure and property and impede the rate of economic growth over this century."

UMD project participant Melissa Kenney, associate research professor in the Earth System Science Interdisciplinary Center and UMD's Cooperative Institute for Climate and Satellites, emphasized that the index is "designed to provide actionable information to supply chain executives so that they can make better decisions about how to allocate resources to reduce risk."

Smith School research professor Sandor Boyson, co-director of its Supply Chain Management Center, said: "We have [UMD's] business school and Silicon Valley-based partner, Resilinc, joining forces with a university-based climate change center [ESSIC] that's linked directly to the federal government [NOAA] and its long-term climate prediction center.

"We're positioned to make an index that in its initial phase will score and rank some 10,000 Resilinc-monitored production locations worldwide for vulnerability to climate change," he said.

The index is expected to bolster Resilinc's "R-Score," its standard metric for measuring, benchmarking, and tracking companies' supply chain risk and resiliency.

"Resilinc has a powerful risk scoring methodology embodied in our R-Score product," said Bindiya Vakil, CEO of Resilinc Corporation. "But until now, there was no reliable source of climate change data to incorporate into risk assessment. Combining what Resilinc has for risk

scoring with the University of Maryland's ESSIC data represents a big advancement in how supply chain managers can measure and mitigate risk."

This climate change index project also involves multiple other Smith School researchers and students. For example Smith School CIO Holly Mann and the Office of Smith IT team have built an innovative virtual research infrastructure to support the secure storage and analysis of data across the project portfolio.

This [climate change](#) work is part of a larger ongoing academic research partnership between the Smith School and Resilinc.

For UMD's Earth Systems Science Interdisciplinary Center the project is just part of the its effort to make 'Earth science' actionable for the public, including private firms, NGOs and government agencies, explained Michael Maddox, project manager for ESSIC's Climate Information Responding to User Needs (CIRUN) project.

"There's a ton of information in terms of Earth and environmental sciences, and it hasn't been getting into the hands of the user community," said Maddox. "It is especially significant for us to work with a private company and with the business school as agents that know the users' wants and needs."

Provided by University of Maryland

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