

## Geoinformatics for Infrastructure Resilience

Bandana Kar, Ph.D.

R&D Staff, Oak Ridge National Laboratory



Friday, October 2, 11:00 AM – 12:00PM

[Zoom Link](#) | ID: 929 9807 7089 | Pass: 559501

**Synopsis.** Extreme events such as tropical storms and floods cause significant damage to critical infrastructures, including power supply and transportation networks. The restoration of electricity supply services following an extreme event is essential for response and recovery efforts as well as for resumption of daily activities. Electricity restoration activity requires situational awareness information about impacted customers and their spatial distribution, assessment of damage to energy infrastructure(s) as well as availability of backup energy sources. With the advancements in geo-spatial technologies and the proliferation of sensors, geoinformatics that enables the convergence of technologies as well as information and data science is widely used to assess resilience of infrastructures in near real-time for decision making purposes. This talk will present findings from inter-related projects that are being undertaken to meet the mission of the Department of Energy's Cybersecurity, Energy Security and Emergency Response Office. By leveraging earth observation and geospatial datasets, these projects are generating products to aid with energy restoration and response activities following extreme events.

**Bio.** Bandana Kar is an R&D Staff member in the National Security Sciences Directorate at Oak Ridge National Laboratory. She was an Associate Professor in the Department of Geography and Geology at the University of Southern Mississippi. With degrees in Architecture, City Planning and Geography/Geographic Information Science, Dr. Kar brings an inter-disciplinary perspective to resilience science that integrates fundamentals of GIScience, planning and disaster science. Her research focuses on the intersection of science, technology and policy and leverages static and dynamic large-scale datasets and computational methods to develop data and impact-driven solutions for resilient infrastructures, smart and resilient cities, and risk communication. She was the recipient of the 2019 Emerging Scholar Award from the American Association of Geographers' (AAG) Regional Development and Planning Specialty Group, and was a fellow of the 2009 National Science Foundation's (NSF) Enabling the Next Generation of Hazards and Disasters Researchers Fellowship Program. She is a co-editor of the book Risk Communication and Community Resilience. She has been funded by the NSF, Department of Homeland Security, Department of Energy, and NASA.