

DECEMBER 7, 2021 meeting announcement.

A View from the Sky: Edenville and Sanford Dams

Abstract

After heavy rainfall, Edenville Dam in Michigan failed on Tuesday, May 19, 2020, and Sanford Dam failed downstream the next day. The National Weather Service (NWS) reported that the Midland area received 4.13 inches of rain from May 17–19. The dam failures prompted the evacuation of over 10,000 residents. A slope failure led to the collapse of Edenville dam, and the quick-release of water from the failed Edenville Dam led to the overtopping and failure of the Sanford Dam situated 10-mile downstream. Following the dam failures, a Michigan Technological University (MTU) team, including the Michigan Tech Research Institute (MTRI), carried out a reconnaissance survey. The MTU team carried out an Unmanned Aerial Vehicle (UAV) survey of the area and developed an orthophoto, digital elevation model, and its derivatives to analyze the failure. In addition, the team analyzed Sentinel-1 images to evaluate the pre-failure condition of the dam. The pre-failure data analysis shows that dam did show signs of weakness.

Speaker Biography



Dr. Oommen is a Professor in the Department of Geological and Mining Engineering and Sciences. He is also the director of the Computational Science and Engineering interdisciplinary Ph.D. program. His research focuses on developing improved susceptibility characterization and documentation of geohazards. To accomplish his research, he has adopted an inter-disciplinary research approach from two main areas, specifically: aerial/satellite-based remote sensing for obtaining data and artificial intelligence/machine learning-based methods for data processing and modeling. He is the Chair of Engineering Geology division of the Geological Society of America and the Editorial Advisory Board Chair for the AEG & GSA joint publication, Journal of Environmental and Engineering Geoscience.