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Extreme rainfall from offshore Hurricane Joaquin caused extensive flooding and the failure of important infrastructure across South Carolina (SC) in October 2015. Several areas experienced precipitation accumulation at a level that occurs once in every 1,000 years. The subsequent floods inundated large areas of SC, specifically around Columbia, and resulted in at least 19 deaths and over \$10 billion of flood induced damage. Geotechnical Extreme Events Reconnaissance (GEER), an NSF funded program that investigates geotechnically important extreme events, formed a team to visit SC to document geotechnical issues associated with major flooding, including the failure of dams and damage to bridges.

The overall goal of GEER is to use information collected after a natural disaster to advance engineering practice and research. Extreme events engineering is an experience-driven field. Thus, it is critically important to systematically collect perishable post-disaster data that can be useful in advancing our understanding of extreme events when they happen. The SC GEER Team consisted of consultants (Geosyntec), university professors and students (Georgia Tech and Clemson), and a Federal Energy Regulatory Commission (FERC) representative, who participated in site visits to investigate: (i) dam and bridge failures; (ii) embankment breaches; (iii) a flooded open pit mining operation; and (iv) dam structures that withstood the flooding.

The SC GEER study included the observation of over 15 dams. The bulk of SC GEER observed dam failures were associated with privately owned and maintained (e.g., lake communities) dams. Multiple cases were observed where upgradient dam failures caused water to rush downstream and resulted in downgradient dam failures. The team also visited the Columbia Canal, a source of the City of Columbia's drinking water, which was breached. In addition to documenting site conditions and geotechnical observations, the team completed Unmanned Aerial Vehicle (UAV) surveys to create 3D models of select dam failures. This data is helpful for understanding how mass movements occurred and is a valuable tool for forensic-type analysis which can possibly aid in reconstructing failures. The main findings from the investigation are presented in a report posted on the GEER website, <http://www.geerassociation.org/>.