

Analysis of Vulnerable Infrastructures to Flood Events in the Continental United States

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Assessment of the risk associated with the built infrastructure imposed by climate and land-use changes showed that the vulnerability of current infrastructures will increase due to more frequent and severe flooding. The goal of this project is to provide multi angles precautional insights on management and maintenance of current critical infrastructures such as the flood control dams, water supply reservoirs, bridges, and power plants in order to guarantee a sustainable and reliable risk mitigation and management strategy. First, the information related to the dams (name, location, date of operation, height, storage and surface capacity, maximum and normal capacity and drainage area) located across the United States will be derived from the National Inventory of Dams (NID) (<http://nid.usace.army.mil/>). Also, the detailed information regarding the current bridges (longitude, latitude, county and state name), bridge failure (<http://www.bridgeforum.org/>) and power plants located in the United States will be collected from the National Bridge Inventory Database (<http://nationalbridges.com/>) and U.S. Energy Information Administration (EIA) (<http://www.eia.gov/>), respectively. Second, flood frequency and duration analyses in the presence of structural reliability will be developed to quantify the risk for those vulnerable infrastructures.