

Annual Distinguished Lecture - 19 June 2017

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Managing Risks to Infrastructure with Real-Time Monitoring of Performance

Construction of new infrastructure and operation of existing infrastructure facilities can create major risks to society and the environment. These risks can include loss of life, major property loss, significant environmental damage, and disruption of societal interactions and commerce. One effective way to help reduce these risks is to monitor performance with sensors so that emerging risks can be detected early enough to activate mitigation measures to stop a risk from fully developing or to mitigate its impacts.

This presentation will discuss the nature of risk to typical infrastructure facilities and how those risks can be mitigated by using sensors, computers and the Internet to provide real-time data on the performance of these facilities. Concepts of risk identification and risk management will be described. Approaches to monitor risks with modern technological tools will be presented. Key points will be illustrated with case studies from historical failures and with recent and ongoing projects. Some of the challenges presented by using performance monitoring to help manage risks will be discussed.