

Special session on
Risk and Resilience Analysis of Interdependent Infrastructures.

Description

Critical infrastructures are more and more highly interdependent, meaning that the services they are supposed to provide are dependent on each other. For example, the availability of a transportation system may depend on the availability of an energy distribution system which may depend on the availability of a telecommunication system. In such a context, risk analysis needs to consider how failures occurring in one given infrastructure affect the other infrastructures performances. Similarly, resilience analysis should focus on the capacity of several interconnect infrastructures to recover from one or more degraded states so that a global or a specific end-user performance criteria is satisfied.

Motivation

The current state of the art related to risk and resilience analysis for interdependent critical infrastructures is rather poor. Up to now, most of the existing methods are mainly dedicated to one specific type of infrastructure by incorporating the physics, models and functional analysis of the related technical areas (energy distribution, telecom network, transportation systems, etc...). New failure modes and failure propagation due to interdependences between several types of infrastructures are not taken into account, neither their possible mitigation, nor the optimal maintenance strategies to prevent or correct them. In addition, the risk and resilience metrics are often defined at a local level for one given infrastructure and may not highlight properly the different needs of different interconnected infrastructures.

Objective

The objective of the session is to gather academics and researchers from industry to discuss recent advances in modelling techniques related to risk and resilience analysis for interdependent infrastructures. We intend also to highlight challenges and problem statements in risk and resilience analysis coming from industry or activity areas dedicated to critical infrastructures management.

Organizer

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