INFRARISK

INFRARISK works for safer European Critical Infrastructures

In Europe, extreme natural hazard events are not frequent but due to the complex interdependency of our critical infrastructure systems these events can have a devastating impact in any part of Europe.

Protection against the impacts of natural hazards must be guaranteed for people to work and live in a secure and resilient environment. No activity, including emergencies and rescue operations, can be carried out with the loss of key buildings and facilities, transport networks and an interruption of essential supplies.

INFRARISK will develop reliable stress tests to establish the resilience of European Critical Infrastructures (CI) to rare low frequency extreme events, thus contributing to the decision making process on how to build safer in the future. **INFRARISK** will focus on road and rail infrastructure in Europe.

INFRARISK will enable infrastructure managers to minimise the impact of extreme events by providing them with the necessary tools to develop robust mitigation and response strategies.

Essential in the **INFRARISK** approach is the dissemination aspect which involves several target levels and the development of focused materials and products to reach the widest audience possible.

The INFRARISK project runs from October 2013 until September 2016

INFRARISK Consortium

The **INFRARISK Consortium** consists of 11 members from seven different countries. The consortium represents a well balanced and strong partnership among universities, research institutions, SME's, and Large Enterprise (LE).
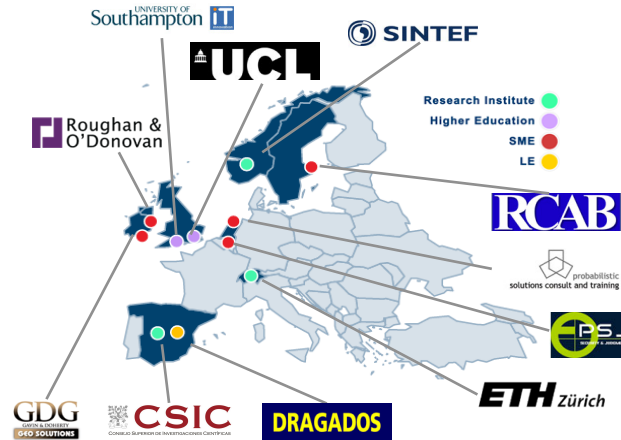
Research Institute
Higher Education
SME
LE

Novel indicators for identifying critical INFRAstructure at RISK from Natural Hazards

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The project in 3' at: **http://goo.gl/6v1ONU**

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Novel indicators for identifying critical INFRAstructure at RISK from Natural Hazards

This project has received funding from the European Union's Seventh Programme for research, technological development and demonstration under grant agreement No. 603960

Objectives

The EU funded FP7 project **INFRARISK** is a three-year collaborative project to develop a stress test framework to tackle the coupled impacts of natural hazards on interdependent infrastructure networks.

INFRARISK will focus on:

• Developing a stress test structure for specific natural hazards on CI networks and a framework for linear infrastructure systems with wider extents and many nodal points.

• Considering the impacts of earthquakes, slope failure, mass movement, and flooding on European roads, highways and railroads (Ten-T Core network).

• Facilitating implementation through the development of GIS based and web based stress test algorithms for complex infrastructure networks.

• Testing the framework developed through the simulation of complex case studies.

• Exploitation strategies aimed at disseminating the 'knowledge' and not just the results.

Risk profiling of extreme impacts

Rare low-frequency natural hazard events, which have the potential to have extreme impacts on critical infrastructure will be identified.

Robust modeling of spatio-temporal processes with propagated dynamic uncertainties in multiple risk complexity scenarios will be developed.

Overarching methodology

The methodological core of the project is based on the establishment of an ''overarching methodology'', a harmonised risk assessment process to evaluate the risks associated with multiple infrastructure networks for various hazards with spatial and temporal correlation.

The overarching methodology will capture and incorporate, into a GIS platform, outputs from the extensive profiling of natural hazards and infrastructure, the analysis of single event risk for multiple hazards and the space-time variability analysis of a CI network

Integrated approach to hazard assessment

An integrated approach to hazard assessment will be developed considering the interdependencies of infrastructure networks, the correlated nature of natural hazards, cascading hazards and cascading effects, and spatial and temporal vulnerability.

Stress test framework

Development of a stress test structure for multi-risk scenarios coupled with a tool for decision making based on the outcome of the stress test.

Implementation

Development of an Operational Analysis Framework considering cascading hazards, impacts and dependent geospatial vulnerabilities with practical software tools and guidelines to provide greater support to the next generation of European infrastructure managers.

Development of a collaborative integrated platform where risk management professionals access and share data, information and risk scenarios results efficiently and intuitively.
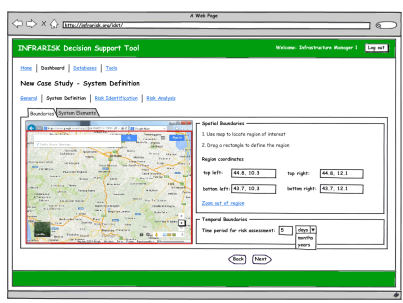
IDST: **INFRARISK** Decision Support Tool (Portal Samples)