Contribution ID: **12** Type: **not specified**

Quantitative fire risk assessment to optimise investments into fire safety

Monday 26 November 2018 16:10 (20 minutes)

Decisions concerning investments into fire safety are usually made based on the reduction of risks, whereas the costs of fire safety measures are often neglected. However, for a thorough assessment, both aspects need to be considered and a balanced ratio between costs and risk reduction should be aspired. Such an assessment leads to optimised fire safety measures.
We show how quantitative risk assessment is used in two case studies to find optimised fire safety measures. The first case study shows how to avoid business interruptions in an airport control tower due to a fire. Quantitative risk assessment in the second case study is used to justify deviations from technical standards when dealing with fire hazards that clearly deviates from the standard case.
In both case studies the whole event chain of a fire is considered, starting from the modelling of fire ignition and fire spread, up to the suppression of the fire by sprinklers and the fire brigade. Since life safety issues were covered by the prescriptive fire safety measures, the optimisation focused on economic losses due to a fire. The economic losses due to a fire were accounted for damages to property as well as for the loss of business continuity after a fire. Especially when the loss of business continuity is considered, optimised measures can be found that improve also the resilience of the system.
In addition to the case studies, we provide some insights to risk modelling techniques, applied acceptance criteria and advanced uncertainty propagation techniques which allows an adequate uncertainty treatment when using computationally demanding tools.

Presenter: Dr DE SANCTIS, Gianluca (EPB)

Session Classification: SESSION IV