

# A spatial decision support system for natural hazard risk reduction policy assessment and planning

Prof. Holger Maier

University of Adelaide, Australia

Politecnico di Milano, October 3, 14:30, conference room DEIB (ed. 20)



## Abstract

The ability to consider effective risk reduction planning is critical, given the potentially enormous social and economic losses associated with the impacts of natural hazards. However, developing and implementing long term risk reduction schemes is often difficult for a variety of reasons, including an investment preference for shorter term benefits, the perceived inaccuracy of risk attributed to disasters due to their relative infrequent occurrence, and budgetary constraints. Therefore, selecting the optimal trade-off between options can be difficult. This presentation will focus on the development and application of a spatial decision support system (DSS), or integrated model, to support policy makers in considering the long term impacts of disaster risk, mitigation and land use planning. The modelling platform integrates various hazard models and calculates risk dynamically using demographic, infrastructure, and environmental data to explore future disaster risk. Model components include hazards (coastal inundation, riverine floods, bushfires, earthquakes, heatwave), land use change, building stock vulnerability, social vulnerability, climate change, demographic and population change and economic change. The DSS allows decision makers, policy analysts and others in strategic and risk reduction planning to consider how the risk from multiple hazard changes with economic and population change. It also allows for the implementation of risk reduction options, including structural measures, land use planning changes, building hardening, changes to building codes and community education, thereby changing social vulnerability.

**Holger Maier** is Professor of Civil and Environmental Engineering in the School of Civil, Environmental and Mining Engineering at the University of Adelaide and an Associate Editor of Environmental Modelling and Software. He has also served as an Associate Editor for Water Resources Research for 5 years. His research is focussed on developing improved techniques for the sustainable management of infrastructure and natural resources in an uncertain environment and includes elements of modelling, optimisation and decision support and he is currently the research leader of the Economics and Strategic Decisions research cluster of the Bushfire and Natural Hazards CRC as well as the leader of a project focussed on the development of a decision support system for the assessment of policy and planning investment options for optimal natural hazard mitigation.

