

A Multi-hazard Perspective on Joint Probabilities of Historic Hazards in Europe

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While the last decade saw huge scientific advances in the understanding of natural hazard risk, most research and policy still address risk from a single-hazard, single-sector perspective, not taking into account the interconnected reality of these events. Single-hazards risk analysis results are often inaccurate and incomplete when multi-hazard disasters occur, as the interaction between them can, for example, lead to a greater impact than the sum of single events. Therefore, the MYRIAD-EU project aim is to catalyse the paradigm shift required to move towards a multi-risk, multi-sector, systemic approach to risk assessment and management. In order to achieve this, the overall aim is that policy-makers, decision-makers, and practitioners will be able to develop forward-looking disaster risk management pathways that assess trade-offs and synergies across sectors, hazards, and scales. A key first step to realize this aim, is to create a greater understanding of realistic multi-hazard event sets, that better examine statistical dependencies between hazard types. To do so, single hazards datasets for meteorological, geological, hydrological and biological events are explored using stochastic modelling and multivariate statistical methods. This will result in a dataset of potential coinciding hazard events at a European scale. The dataset can be used to better understand indirect, interregional, and cross-sectoral risk within Europe. Moreover, the multi-hazards event sets can be used to simulate future conditions under climate change with the use of Representative Concentration Pathways (RCPs).

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