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## A Global Multi-hazard Perspective on Joint Probabilities of Historic Hazards

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While the last decade saw substantial scientific advances in studies aimed at improving our understanding of natural hazard risk, research and policy commonly address risk from a single-hazard, single-sector perspective. Thus, not considering the spatial and temporal interconnections of these events. Single-hazards risk analyses are often inaccurate and incomplete when multi-hazard disasters occur, as the interaction between them may lead to a different impact than summing the impacts 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 achieving this aim is to create a greater understanding of realistic multi-hazard event sets that better examines 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, and create a dataset of potential coinciding hazard events at a global scale. By exploring these multi-hazard interconnections, we achieve a deeper understanding of the different types of multi-hazards events and their temporal and spatial interconnections. Furthermore, this dataset maps indirect, interregional, and cross-sectoral risk throughout the world. Moreover, the multi-hazards event sets will enable to simulate future conditions under climate change by incorporating the Representative Concentration Pathways (RCPs) as well as Socio-economic change using Shared Socioeconomic Pathways (SSPs).