

Rock avalanches, debris flows, and snow avalanches are landslide- and landslide-related processes, subsumed under the term extremely rapid mass movements. These processes pose varying degrees of risk to land use, infrastructure, and personal security in many mountainous regions. Despite increasing efforts to quantify the risk in terms of potential damage or loss of life, most previous studies have achieved partial rather than total risk solutions. IRASMOS addresses these shortcomings by reviewing, evaluating, and augmenting methodological tools for hazard and risk assessment extremely rapid mass movements. Results will be synthesized in strategies proposed within the framework of an Integral Risk Management (IRM) in selected European mountain catchments, targeted to equally address measures pertaining to landslide- and snow-avalanche disaster prevention, response, and rehabilitation. The proposed project adopts the character of a comprehensive take-up and feasibility study, recognizing fundamental problems of (a) constraints in data quality, availability, and analysis, (b) constraints in technical, logistical, and financial support, (c) integrating the synchronous or interdependent occurrence of rapid mass movements and their potential off-site and long-term effects in a multi-risk context. Key results include a set of IRM Best Practice Handbook for quantifying and managing total risk from rapid mass movements given possible constraints set by known environmental and administrative boundary conditions. Integrated critical thresholds needed for risk-oriented planning will be quantified and tested. A comprehensive catalogue of triggers and threshold conditions for extremely rapid mass movements, countermeasures, and sensitivity of hazard, vulnerability, and risk indicators will serve as further measures for total risk assessment, allowing customized decision-support for prevention, intervention, and rehabilitation efforts in European mountain ranges.