EGU22-12811
https://doi.org/10.5194/egusphere-egu22-12811
EGU General Assembly 2022

Multi-hazard, cross-border storm risk assessment in the Alps. First insights from the TRANS-ALP project

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Extreme hydrometeorological events such as late autumn and winter storms are being increasingly observed in southern Europe and particularly in the Alps, where they threaten environmental and socio-economic systems. An example is the 2018 Vaia (also known as Adrian) storm (Oct 28-Nov 04), which strongly affected Italy, Austria, France and Switzerland. Over the past decades several damaging storms strongly impacted (i.e., caused adverse consequences on assets, people, infrastructure or the environment) mostly those countries on the northern side of the Alps (e.g., Vivian 1990, Lothar 1999, Gudrun 2005, Kyrill 2007). The Vaia storm however affected the southern side, downing more than 8 million cubic meters of forests and causing extensive damage due to a combination of multiple compounded hazards including heavy rain, flooding and landslides, and strong winds. The event caused 12 fatalities and an economic loss exceeding 3 billion Euro. This storm has been considered exceptional yet could foreshadow multi-hazard phenomena whose frequency and intensity are likely to be influenced by climate change. In such conditions, currently available risk assessment and prevention tools may prove inadequate, particularly on a cross-border level and in vulnerable mountainous regions. Therefore, there is a need to provide decision makers and stakeholders with improved and harmonised tools and standardised frameworks to conduct efficient (climate) risk assessments for cross-border areas. Current and future impacts need to be systematically investigated to adopt prevention and disaster risk reduction measures for the mitigation of inherent risks. In its first year the TRANS-ALP project analysed the occurrence of severe weather events that can be classified as extreme and their specific features in the cross-border area between Austria and Italy (Trentino-Alto Adige/South Tyrol and Veneto). Furthermore, a systematic review of the mechanisms in place to collect impact, damage and loss data has been conducted to allow for a better conceptualisation of the different risk pathways that come into play in case of intense storms. Our findings indicate a noticeable increase of extreme weather conditions that can lead to adverse consequences, also from a systemic perspective, and a complex interplay of damaging factors and chained impacts that can extend for years after the occurrence of the generating events. The findings also highlight the importance of a comprehensive multi-hazard and transdisciplinary approach to storm risk

assessment within a framework harmonising Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) instances. In this contribution the first results and insights of the project will be presented and discussed.

The described research activities have been carried out within the framework of the DG-ECHO project TRANS-ALP funded by the European Union (Grant Agreement 101004843).