An eye on Vaia storm: an unprecedent opportunity to investigate windstorm impacts in a constructive and multidisciplinary way

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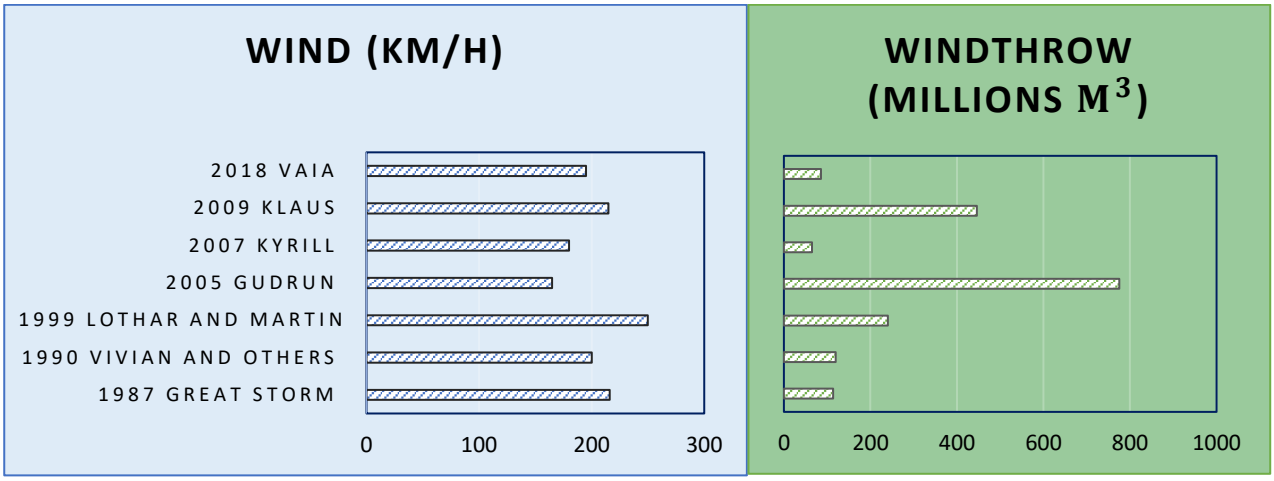
Effects and consequences of climate change are starting being straightforward, especially in those areas where nature is the main leading element. So it is for mountain and forests, whose exposure and vulnerability to extreme natural events is exponentially increasing. According to estimates, storms have been identified as the most impacting agent for European forest and forest socio-ecological systems and their frequency and severity is expected to increase. At European level the most recent of these catastrophic events has been Vaia windstorm.



Data Source: Sisef - Compagnia delle foreste

On the night between the 28th and 29th of October 2018 Italy was hit by the most damaging windstorm that has ever affected the Country. Wind gusts have hit the North- East of Italy at speeds higher than 190 km/h, affecting four out of the six regions in the area (i.e., from West to East, Lombardy, Trentino & South Tyrol, Veneto and Friuli-Venezia Giulia): more than 41.000 hectares of forest were destroyed and more than 8 million of m^3 timber windthrown. Vaia windstorm has shattered the Italian forest system but also had many severe socio-economic direct and indirect impacts on many mountainous areas. Today, two years after the event, forests and mountain communities are still striving to recover and find a new equilibrium.

Località Malgonera, comune di Taibon Agordino (BL)
Photo: Maximiliano Costa

passo Lavezè, Trentino Alto Adige

Different actors and stakeholders at different institutional and governance level are engaged in the identification of operational solutions to fasten the recovery process after extreme events. Scholars are involved in researches aimed at identifying and studying medium to long term consequences of Vaia windstorm in different forest-related sectors (ecology, wood markets, tourism, etc.) as well as connections and interactions between forest ecosystems and communities affected by the storm.

Given the size and complexity of the event and impacted areas, Vaia represents a unique opportunity to develop multidisciplinary research activities for a better understanding of extreme events and possible actions to prevent/reduce their impacts. This is why the Department of Land, Environment, Agriculture and Forestry (TESAF in Italian) of the University of Padova is running the VAIA FRONT project, a multidisciplinary research project aiming at analyzing vulnerabilities of socio-ecological systems hit by Vaia and testing, in a pilot area of Veneto region, effective risk management and recovery strategies.
Project activities are complemented by research activities developed by a group of Young Scientists for Vaia, i.e. PhD candidates currently developing their PhD projects within the Land, Environment, Resources and Health PhD school at TESAF Department.
One of this research activities is focused on enhancing the understanding of different institutional and governance mechanisms that boost community resilience and defining which are the key factors that have shaped individual and community reactions and recovery strategies to Vaia windstorm.

Besides causing huge damages at environmental and landscape level, Vaia storm strongly affected socio-economic, institutional and governance assets. Results of preliminary analyses have highlighted a knowledge gap in the estimation of socio-economic damages. Data availability on the overall economic damages is very limited and - so far - impacts on the communities from social, cultural and managerial perspectives have barely been taken into consideration.
Vaia has posed and is still posing several challenges at a governance level: different stakeholders' attitudes and needs have to be taken into consideration and harmonized together in order to implement effective recovery strategies. Acquire a correct and complete understanding of windstorm impacts in all forest- related

dimensions socio-ecological systems is the first step to identify the weaknesses to be addressed and the strengths to be reinforced for developing appropriate strategies in order to increase resilience of the communities hit, as well as, improving governance effectiveness at various levels.

Further researches, interdisciplinary scientific collaborations and a shared management among multiple stakeholders are needed to understand trade-offs, short and long term effects both at environmental and social level in the areas hit and ensure a long-term recovery. Both the PhD activities and the VAIA FRONT project will contribute improving knowledge in this field and provide inputs for future technical and policy actions.

Photo: Federica Romagnoli_ comune di Sappada, provincia di Udine