

Newsletter nº 1 – February 2015

➤ Overview of the Wind Risk Prevention project (WIND RISK)

Wind Risk project is being implemented with the contribution of the Civil Protection Financial Instrument of the European Union.

Wind Risk project focuses on wind related risks and stress the necessity to start addressing wind issues and to undertake actions towards prevention against wind risk. It deals with improving the effectiveness of existing policies and financial instruments throughout guidelines for local-based wind disaster risk reduction actions and tools. It emphasizes the assessment of vulnerability and preparation of action plans based on improved knowledge of high wind through accurate new high frequency measurements. Furthermore, Wind Risk project aims to raise awareness of wind disaster prevention, promote wind prevention measures and cooperation of diverse EU areas facing wind risk.

During the two-year Wind Risk project initiatives and actions in order to enhance wind risk preventive mechanisms, will be conducted. In order to address the issues of high wind and high wind gusts adaptation and awareness, a complete assessment in five major aspects: population, infrastructure, transportation, buildings and forests in combination with hail, snow and sleet will be performed. Special guidelines for regulations for transit both on land and in the harbor, improvement of existing and new building and infrastructure as well as for forest management will be prepared. A new high frequency wind measurement approach will be used and all data will be recorded and shared with the public via a live stream web page, which will also serve as an alarm system to alert local and national civil and professional protection units.¹

The Wind risk project partnership consist of four partners: Coordinating Beneficiary University of Ljubljana (Slovenia) and Associated Beneficiaries Municipality of Ajdovščina (Slovenia), Technical University of Dortmund (Germany) and University of Split (Croatia). Project partners works on a sample of significant areas in the EU facing wind risk: 1. Ajdovščina (Slovenia), 2. Central Dalmatia (Croatia) and 3. North Rhine-Westphalia (Germany):

1. Ajdovščina (Slovenia)

The area of the Municipality of Ajdovščina is highly exposed to strong wind, called bora, which occurs 42 days per year on average. Its strongest gusts exceed the speed of 200 km/h. Bora affects people's everyday lives, causes damage in agriculture, traffic and destroys buildings.

In the periods of extremely strong wind people are advised not to leave the buildings due to the safety reasons. Kindergartens, schools, other public buildings, factories and even medical center are closed. Furthermore, strong wind easily tears down the electricity and telephone cables. Lack of the electrical power affects also the supply of the drinkable water. Inevitable bora's consequences are smaller or bigger damages on the buildings, most common consequences are uncovered roofs.

¹ Wind Risk Prevention Project, Acronym: Wind Risk, ECHO/SUB/2014/695276.

When the wind speed exceeds 100km/h the traffic is obstructed. The highway is closed for the truck trailers because of the risk of overturning, which brings negative consequences on the local economy. The Municipality of Ajdovščina is known for its agriculture, which gives jobs to several inhabitants in the area. Bora constantly poses threat to the agriculture; it can break or uproot the trees and crops and dries the soil. Damage in agriculture most likely occurs in the spring, when bora shakes off the tree blossoms, hence, destroys the crops. Moreover, due to its strength it accumulates or deflates the soil, consequently farming is impeded.²



Fig. 1: The effects of the Bora wind – truck turned over due to strong wind (left) and unrooted tree (right) (Source: www.primorske.si)

2. Dalmatia (Croatia)

Regardless of its mild climate conditions, Split, Split surroundings and the whole Dalmatia County occasionally suffer from strong winds, gusty winds or other kinds of troublesome winds. In some weather conditions the effects of wind can cause interruption of transportation on air, land and sea: airports are closed because of the hazard of wind impact on airplanes which are endangered during landing and take-off. Parts of roads are sometimes closed to avoid danger of wind force impact on vehicles. This is especially applicable to bridges, where side impact of wind is very dangerous. Ferry lines are interrupted on the sea in case of high waves. Variations in wind direction and gust with relation to terrain configuration, like gorges, can cause danger with high intensity.

In latest years, as a result of global warming, besides winds, whirlwinds occur more regularly in Dalmatia. This kind of circular wind can damage property, agricultural crops and can even cause casualties. Real time monitoring of wind conditions, prediction of danger and proper reaction can decrease the cost of damage the wind is causing.³

² Wind Risk Prevention Project, Acronym: Wind Risk, ECHO/SUB/2014/695276.

³ Wind Risk Prevention Project, Acronym: Wind Risk, ECHO/SUB/2014/695276.



Fig. 2: Waterspout (Source: www.reporter.si)

3. Dortmund (Germany)

The winter storm Kyrill hit Western Europe in general and the City of Dortmund in particular between 17 and 19 January 2007. Maximum wind gusts reached 202 km/h in the southern parts of the City. Major parts of the forests and hundreds of roofs were completely demolished as shown by the following figure:



Fig. 3: The effects of the storm Krill (Source: www.wdr.de)

Kyrill, like many other strong European winter storms, was embedded in a pre-existing, anomalously wide, north-south mean sea-level pressure (MSLP) gradient field. In addition to the range of gusts that might be expected from the synoptic-scale pressure field, mesoscale features associated with convective overturning at the cold front are suggested as the likely causes for the extremely damaging peak gusts observed at many lowland stations including Dortmund during the passage of Kyrill's cold front. Compared to other storms, Dortmund was affected by, Kyrill was by far not the most intense system in terms of core pressure and circulation anomaly. However, the system moved into a pre-existing strong MSLP gradient located over Central Europe which extended into Eastern Europe. This fact is considered determinant for the anomalously large area affected by Kyrill.

Additionally, considerations of windiness in climate change simulations using two state-of-the-art regional climate models driven by ECHAM5 indicate that not only Central, but also Eastern Central Europe may be affected by higher surface wind speeds at the end of the 21st century. These changes are partially associated with the increased pressure gradient over Europe which is identified in the

ECHAM5 simulations. Thus, with respect to the area affected, as well as to the synoptic and mesoscale storm features, it is proposed that Kyrill may serve as an interesting study case to assess future storm impacts and plan necessary response actions.

Here, main fields of action are

- An adapted forest management strategy including the cultivation of more wind-resistant tree species.
- A continuous check of the structural stability of alley trees
- Investments in technical response capacity of the fire brigade
- Adapted building and planning codes (to wind pressure)

Citation: Fink, A. H., Brücher, T., Ermert, V., Krüger, A., and Pinto, J. G.: The European storm Kyrill in January 2007: synoptic evolution, meteorological impacts and some considerations with respect to climate change, *Nat. Hazards Earth Syst. Sci.*, 9, 405-423, doi:10.5194/nhess-9-405-2009, 2009.

➤ Wind Risk Project presentation in Brussels

Wind Risk project is one of the selected projects under 2014 call for proposals of the Civil Protection Financial Instrument. Kick off meeting for projects managers took place in Brussels on 20 January 2015.

During the first part of the meeting, the Committee representatives provided statistics and practical administrative, financial and legal issues regarding project management and implementation. Afterwards also the Wind Risk project manager, Mr. Goran Turk from University of Ljubljana, held a 10-minute presentation of the project. He focused on the project study areas affected by strong winds and storms (i.e. North Rhine-Westphalia, Central Dalmatia and Ajdovščina), explained the necessity to start addressing wind issues and clarified the Wind Risk Project contents, including its objectives, actions and expected results.

Wind Risk project presentation held by Mr. Goran Turk at the Kick off meeting in Brussels on 20 January 2015 can be found at <http://ec.europa.eu/echo/en/funding-evaluations/financing-civil-protection-europe/selected-projects/wind-risk-prevention-project>



Fig. 4: The Wind Risk project presentation held by Mr. Goran Turk

➤ **First Project WIND RISK Meeting**

Municipality of Ajdovščina (Slovenia) hosted the first Wind Risk Project meeting on the 28th - 29th of January 2015. Representatives of all Wind Risk partners were present. They discussed all topics regarding the implementation of the project and common wind risk issues.

The meeting was focused on a detailed overview of the whole project structure and planning. Wind Risk project manager, Mr. Goran Turk from University of Ljubljana, presented all general and specific administrative, technical and financial aspects. All project activities were analyzed, one by one in detailed, great emphasize was paid to vulnerability assessment and action plan tasks. Project monitoring and evaluation procedures were highlighted. Operational plan was fixed in order to enable the implementation of foreseen activities, underlining individual partner's aspects.

Project partners discussed and evaluated wind measurement equipment and installation of a unified high frequency wind measurement system. Hereafter, the importance of implementing a unified evaluation method of wind measurement data was emphasized. Partners planned the creation of a live web information page open to public with an automatic system alarming for civil protection units. Best practices in wind measurements in three areas were analyzed. Finally, the sustainability plan for project results was evaluated.

In the afternoon, first Wind Risk project press conference took place. Wind Risk project and its partners were officially introduced to the local media for the first time. Coordinating Beneficiary University of Ljubljana presented the Wind Risk Project's main objectives and activities as well as the wind measurement equipment installed at the Ajdovščina stadium. Associated Beneficiaries presented project study areas, i.e. Ajdovščina (Slovenia), Central Dalmatia (Croatia) and North Rhine Westphalia (Germany), and wind-related issues the areas they are facing. Press conference opened further discussion on the project, its results and wind issues. After the discussion ended, individual interviews took place.

Overall, first Project Wind Risk meeting provided an excellent start to the project and lunched a variety of communication channels. Furthermore it grant the most effective interaction between project partners in order to achieve excellent results of project objectives, activities and disseminating outputs.