



General information

Description	Local Winds Maps in Spanish Basque Country
Geographical area	Northern Spain, with a special focus on Basque Country
Group of tree species	<i>Pinus radiata</i> and other species
Date	March 2018
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Tool type	Model
Tool format	Cartography layers (SIG)
Language	Spanish
Risk management plans to which the tools can be added	Plan de gestión de tormentas en relación a los bosques – País Vasco
Risk management plans link	https://plurifor.efi.int/wp-content/uploads/WP2/plans/storm-risk-plan_ES.pdf
This tool is...	<input checked="" type="checkbox"/> a new tool
Original tool of which this one is an improvement	WindNinja. In: Proceedings of 8th Symposium on Fire and Forest Meteorological Society; 2009 October 13-15; Kalispell, MT (2,037 KB; 13 pages) https://ams.confex.com/ams/8Fire/techprogram/paper_156275.htm

Topic

Risk	Storm
Risk component	<input checked="" type="checkbox"/> hazard <input type="checkbox"/> impact <input type="checkbox"/> vulnerability
Risk area	Risk assessment
Risk phase	Prevention
Risk phase (alternative terms)	Preparedness
Level	Regional
Sendai priorities	<input checked="" type="checkbox"/> Priority 1: Understanding disaster risk <input type="checkbox"/> Priority 2: Strengthening disaster risk governance to manage disaster risk <input type="checkbox"/> Priority 3: Investing in disaster risk reduction for resilience <input type="checkbox"/> Priority 4: Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction
Contribution to Sendai targets	<input type="checkbox"/> Reduce global disaster mortality <input type="checkbox"/> Reduce the number of affected people <input checked="" type="checkbox"/> Reduce the direct disaster economic loss <input type="checkbox"/> Reduce disaster damage to critical infrastructure <input type="checkbox"/> Increase the number of national and local disaster risk reduction strategies <input type="checkbox"/> Enhance international cooperation to developing countries <input checked="" type="checkbox"/> Increase availability of and access to multi-hazard early warning systems and disaster risk information and assessment



Description and analysis

Summary

Wind is a fundamental element in the management of forests and in the forest fires. Therefore, fire simulators require wind direction and speed data to adapt to real fires. WindNinja is a powerful tool incorporated to the new fire simulators to improve its accuracy.

The developed maps are a new tool, generated by WindNinja and based on the DTM (Digital Terrain Model) of the 2012 LiDAR flight of the Basque Country. They allow calculation of the vulnerability and risk of damage to forest stands from storms, as a function of forest location and wind direction.

Local winds: 8 maps have been designed, corresponding to the 8 main winds (N, NE, E, SE, S, SW, W and NW) and with a 100-meter calculation cell. In each cell, there are local information about expected speed and direction for these 8 main winds.

Place in national/regional policy

At present it is not integrated in regional policy. The purpose was to develop a simple to use tool that could be easily connected to current forest maps.

Goals and achievements

This is a map collection very related to Basaize and complementary, but included in several shapefiles and depending on the expected wind direction.

Stakeholders involved

A workshop was held with forest representatives from all three provinces of Álava, Biscay and Gipuzkoa, representatives of forestry associations and forest owners and managers to introduce the tool and the annexes.

These shapefiles will be easily downloaded and visualized in geographical web viewers as GeoEuskadi (<http://www.geo.euskadi.eus>).

Implementation stage

Maps are available to any interested parties, basically Forest Authorities and forest owners. At this stage, there is no immediate plan to incorporate this version of the model directly into official planning systems but to provide a simple and easy use tool within a commonly used software (GIS, web viewers) to make it as user-friendly as possible.

State of technical knowledge

Maps complement our best current understanding of calculating wind risk to forests and is state-of-the-art for forest risk calculation in the Spanish Basque Country.

Regulatory and/or socio-economic contexts

At present little regulatory context but potentially important socio-economic benefits by helping forest managers and owners to make silvicultural decisions to mitigate the risk of wind damage

Impacts of the tool

To date very little impact because the tool has not been widely adopted. Efforts will be made to increase the impact by improving the implementation in GIS or in web viewers and organising further workshops.

Implementation requirements and durability

Description of the implementation steps

1. Underlying model development (Basaize)
2. Incorporation of model functions in GIS or in web viewers
3. Workshop with key stakeholders
4. Revision of implementation based on stakeholder feedback (in progress)
5. Model available to download (not yet implemented)



Governance

- HAZI will be responsible for continued development, improvement and availability
- HAZI will be responsible for implementation and replication of maps in other regions with DTM or Lidar data

Regulatory framework

The tool is advisory only to assist forest managers. There is no regulatory framework at present.

Human resources requirements

Good collaboration between EFI and the main stakeholder groups will allow long-term implementation beyond the end of the project. For successful implementation it will require further one/two day workshops. Such workshops should be organised once or twice a year in Nouvelle-Aquitaine. In addition some form of short help manual is also required.

Financial requirements

Low level of financial requirement for basic installation because the tool is freely available and can be added to GIS or to web viewers for anyone with access to these information. However, for a fully effective implementation it will be necessary to make the incorporation more clear, to provide a short help manual.

Technical requirements

Can run on any computer, tablet or smartphone with GIS or access to web viewers (online).

Priorities identified for successful implementation of the tool (political, technical, human, financial...)

The priorities are promotion of the tool within the forestry sector in other regions, and updating of the model to interface and ease of use. There is also a need for the forest authorities to encourage use of such a tool within the region.

Challenges or risk factors (legal, financial, safety...) expected during the implementation and solutions proposed

The main challenge is to change the way that forest managers and owners evaluate risk. For a rare (but important) hazard like storms or fire, it is difficult to persuade people to utilise such tools. In addition the role of forestry associations in promoting the use of maps is very important because of the large number of small-scale private forest owners in the region.

Additional and non-formal experiences to help the implementation of good practice

This tool was designed to be used by people familiar with access to a GIS or to web viewers.

SWOT analysis

Strengths	Weaknesses
<p>Scientifically based and tested tool for evaluating storm risk and the fire behavior.</p> <p>Familiar to most computer/smartphones users because of their experience with GIS or web viewers.</p> <p>As the relief (DTM) does not change in the future, it is not necessary to recalculate the maps from new LiDAR flights.</p>	<p>Models is not integrated in the current management systems used in the region.</p> <p>Large volume of information to download when someone works with maps of a whole region.</p>
Opportunities	Threats
<p>Possible to reduce the financial impact of storms on forestry in Basque Country.</p> <p>Allows foresters to evaluate the impact of different species choice and management options against strong and permanent winds.</p>	<p>Difficulties in persuading people to use the tool because of inherent reluctance to add additional work to busy jobs.</p>



Lessons learnt

Evaluation process, if exists (internal or external)

Verbal feedback from participants at the first seminar demonstrating the maps. Ongoing evaluation by developer to improve performance and easy of use with GIS or web viewers.

Assessment of results (quantitative and qualitative) and comparison with main goals

Tool meets the original goals but needs improvement in order to make it easier to use.

Negative aspects identified

Interface within GIS or web viewers needs improvement and a short Help Manual in Spanish is required.

Unexpected consequences (short- / mid- / long-term) and corrective measures implemented

None so far

Access to complete tool

Files	8 maps (.tif) of 6 Mb each one
Web links	https://plurifor.efi.int/wp-content/uploads/WP2/tools/MAPA_RIESGO_VIENTO_jpg.jpg

