



General information

Description	Wind damage risk model for forests in Spanish Basque Country
Geographical area	Spanish Basque Country
Group of tree species	<i>Pinus sylvestris</i> , <i>Pinus laricio</i> , <i>Larix kaempferi</i> , <i>Pseudotsuga menziesii</i> , <i>Picea abies</i> , <i>Fagus spp.</i> , <i>Quercus spp.</i> , <i>Pinus pinaster</i> , <i>Pinus radiata</i> , <i>Eucalyptus globulus</i> , <i>Eucalyptus nitens</i> , <i>Chamaecyparis lawsoniana</i>
Date	September 2017
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Tool type	Model
Tool format	Stand-alone software
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"/> an improved tool
Original tool of which this one is an improvement	Hale, S., Nicoll, B., Gardiner, B., (2015) ForestGALES - A wind risk decision support tool for forest management in Britain: User Manual, Version 2.5. Forestry Commission, Edinburgh, UK https://www.forestry.gov.uk/forestgales

Topic

Risk	Storm		
Risk component	<input type="checkbox"/> hazard	<input type="checkbox"/> impact	<input checked="" 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
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Description and analysis

Summary

This tool is a stand-alone computer model designed for use on PC or Apple computers. It allows calculation of the vulnerability and risk of damage to forest stands from storms for key species in the region as a function of species, age, stand management, and location

Place in national/regional policy

At present it is not integrated in regional policy and is mainly being used for research. However, the tool is used to develop vulnerability and risk maps for regional policy making.

Goals and achievements

This is the first storm risk model for the Spanish Basque Country. It incorporates data on tree pulling in the Basque Country and Northern Spain, a wind climate map, and growth models for the main tree species. It is the first time that the risk to forest stands can be evaluated in the region.

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.

Implementation stage

Model is being revised based on feedback from the workshop. It will then be made available to download for any one interested. At this stage there is no immediate plan to incorporate the model directly into official planning systems.

State of technical knowledge

The tool is state-of-the-art for forest risk calculation in the Basque Country. However, there are still a number of improvements that would be beneficial: 1) tree pulling with beech in the region, 2) better growth models for the region to replace growth models developed in Portugal and Galicia, 3) full validation of the model against a damage data set.

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 model interface and organising further workshops.



Implementation requirements and durability

Description of the implementation steps

1. Model development
2. Workshop with key stakeholders
3. Revision of model based on stakeholder feedback (in progress)
4. Model available to download (not yet implemented)

Governance

- EFI PFF will be responsible for model development, improvement and availability
- HAZI will be responsible for implementation and training in the Basque Country

Regulatory framework

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

Human resources requirements

Good collaboration exists between EFI and Hazi and will allow long-term implementation beyond the end of the project. For successful implementation it will require 1 or 2 day workshops. Such workshops should be organised twice a year in the Basque Country. However, for full implementation there is a need to translate the Help Manuals into Spanish and this would require a translator for approximately 2-3 weeks and some software programming from EFI.

Financial requirements

Low level of financial requirement for basic installation because the tool is freely available and can be installed by anyone on a personal computer. However, for a fully effective implementation it will be necessary to translate the Help manuals into Spanish and this additional cost is not currently included in the project.

Technical requirements

Windows® operating system (Windows® 3 to 10) and 30 MB of available hard-disk space. Can also run on Apple OS (if software such as Bootcamp, VMWare Fusion or Parallels Desktop 6 for Mac has been installed to allow the computer either to boot in Windows mode or for Windows to run in parallel)

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

The priorities are promotion of the tool within the forestry sector in the Basque Country, updating of the model to incorporate user comments and criticisms and translation of all relevant material into Spanish. 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 it is difficult to persuade people to utilise such models. In addition the role of forestry associations in promoting the tool is very important because of the large number of small private forest owners.

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

N.A

SWOT analysis

Strengths	Weaknesses
Scientifically based and tested tool for evaluating storm risk Easy to update with new knowledge	Model is stand alone and not integrated in the current management systems used in the region
Opportunities	Threats



Possible to reduce the financial impact of storms on forestry in the Basque Country
Allows foresters to evaluate the impact of different species choice and management options

Difficulties in persuading people to use the tool because of inherent reluctance to add additional work to busy jobs.

Lessons learnt

Evaluation process, if exists (internal or external)

Questionnaire completed by more than 30 people at first workshop demonstrating the tool. Ongoing evaluation by developer to improve model performance and to compare predictions against known damage.

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

Model meets the original goals but needs improvement in order to make it easier to use and more directly relevant to foresters in the Basque Country

Negative aspects identified

Interface needs improvement and Help Manual needs to be translated into Spanish

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

None so far

Access to complete tool

Files	Basaize1.1_20170909.exe
Web links	https://www.dropbox.com/s/l90ov93hcbccqqr/Basaize1.1_20170909.exe?dl=0