



Case Study Report FRISK-GO

The FORESTORMS database and the storm damage and tree stability references databases

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Adding value with a European Forest Risk Facility

Case study reports are a tool to investigate and document how a European Forest Risk Facility can add value to current actions using concrete examples based on real events/incidents

A) Description and background

In 2009, Storm Klaus seriously damaged forests in South West France and in Spain. This storm followed a number of other storms with some countries suffering two devastating storms within 10 years, to the detriment of their wood industries which are still recovering.

In this context, a study was conducted in 2009 and 2010 to review existing knowledge and European experience on storms in 8 countries, which produced a report submitted to the European Commission Directorate General for the Environment (Gardiner et al., 2010). It catalogued more than 130 storms that had caused serious damages since 1950 in Europe and proposed actions to improve knowledge diffusion.

It also led to the creation of a participative database of damaging storms in Europe, the European Storms catalogue: FORESTORMS, accompanied by a database on Storms damages and Tree Stability References (http://www.efiatlantic.efi.int/portal/research/storm_european_study/).

B) Approach taken

As storms are one-off events and the damage they cause was difficult to evaluate in the past, people who currently study storms, or need information on storms often do not have a record of what happened in the past. In the same way, events that occurred in other parts of Europe, sometimes during the same storm are not often shared around Europe because they may be recorded in local languages (Gardiner et al., 2010; see also EFI, 2013). The European Study on

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Forest Storms (Gardiner et al., 2010) came to these conclusions and the FORESTORMS database was created to help answer these demands.

The FORESTORMS database is a participative tool which can be filled and corrected by any person willing to do so and having access to relevant data. People only need to apply for access, which is provided by the database manager and which ensures a control of new added information.

The screenshot shows the FORESTORMS database interface. At the top, there is a navigation bar with the EFI logo and the text 'Atlantic European Regional Office of the European Forest Institute'. Below this is a search bar and a filter section with dropdown menus for 'Country = [All]', 'Event ID = [All]', and '30 majors [All]'. The main heading is 'European Storms Catalogue'. Below the heading, there is a table with columns: 'see detail / storm', 'Event ID - Year-Number', 'Month-Day', 'Storm Name', 'Country', 'Affected Area (ha)', 'QA', 'Primary damage (Mm3)', 'Q1', 'Secondary damage (Mm3)', 'Q2', 'Tertiary damage', 'Q3', and 'Estim Grow Stock (Mm3)'. The table contains five rows of data for storms in France, Netherlands, UK, Denmark, and Germany. At the bottom of the table, there is a pagination control showing '1/56 page | Prev | Next | 1 | Go | Rows per page 5 | Change' and an 'Add a new storm' button. The EFI logo is visible in the bottom left corner of the page.

Figure 1 : figure caption of the FORESTORM database

The data completed in FORESTORMS are open access and can be utilised by any interested person. The type of information provided includes:

- Information corresponding to an individual storm: year, month and exact dates of occurrence, storm name, maximum wind speed (m/s) storm duration.



- Information on damage caused by a storm: country/countries hit, affected area (in ha), primary damage (direct wind damage in Mm^3), secondary damage (for example, caused by insects Mm^3) and tertiary damage (descriptive text on long term consequences), percentage of growing stock damaged (in %), percentage damage in relation to normal annual removals (in %) and the estimated value of damage to the forest sector (in €).
- Quality of information source: distinguishing between national statistics and initial estimates becoming available directly after a storm event (e.g. as delivered by newspapers).

As older storms may not have been documented in such detail, the data provider is asked to give an indication of the reliability of the data on the event that is being uploaded.

Since its creation, this database has been used mainly by researchers looking at wind damage in forests, often to understand the importance of wind damage as a disturbance agent in forest ecology. They use the database as an indication of probable wind damage in their forest in a particular month in the past and the database has proven to be more accurate than reanalysed historical climate data for predicting damaging events.

C) Added value

Storms can create huge damages to forests in Europe, yet, there is no harmonised reporting procedure at the European level and it is very difficult to obtain information on all the damage induced over time. In many cases, initial estimates can be very different and generate a lot of confusion amongst forest managers, owners and regional and national representatives. The FORESTORMS database makes available as much data as possible on past storm damage. Even if only limited information is currently available, it can be added to the database, visualise the gaps and allow for completion at a later date as data becomes available.

There are suggestions that climate change may contribute to an increase in the number of damaging storms in Europe. Even though recent events such as the storms 'Martin' and 'Klaus' in South West France in a 10 year time period seem to support this suggestion. Climate experts, however, are not yet in full agreement on this. An inventory of past storms may help research on the recurrence of such damaging storms and a potential increase of damage in the future. It essentially can act as a best available baseline on storm damage to forests in Europe.

Data are still missing in the database. A future European Forest Risk Facility could assist in establishing and maintaining a network needed to complete the database and ensure a constant feeding of the database with actual information.

A European Forest Risk Facility could play a crucial role in promoting the database as a participative instrument and involve the storm community in its designing and utilisation as a central reference database and inventory tool.



A European Forest Risk Facility could also act as a catalyst and link with other disturbance communities including science, operational manager and practitioners who may be in need of such information or seek cooperation with other experts.

D) References

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