Press release

2 April 2026

Detecting forest damage faster with satellites

Storms, drought, pest infestations: experts need to know quickly and in detail which forest areas have been damaged so that clearance and active reforestation can begin without delay. To this end, the Thünen Institute of Forest Ecosystems has significantly further developed the *Remote Sensing-based National Forest Damage Monitoring System (FNEWs)*.

Eberswalde (2 April 2026). "For effective forest management, it is crucial to know where and to what extent forest areas have died," says Dr Katja Oehmichen of the Thünen Institute of Forest Ecosystems. Scientists are therefore using data from the European Earth observation satellite Sentinel-2 to automatically detect and visualise dead forest areas. This data is incorporated into the remote-sensing-based National Forest Damage Monitoring System (FNEWs). The satellite-based monitoring complements existing forest monitoring and inventory systems by providing annual, detailed and comprehensive information on disturbed areas within the forest.

In an initial project, individual areas were used to test what such satellite-based monitoring should look like. Further development now shows, for the whole of Germany, which forest areas are affected by weather events such as storms and droughts or insect infestations. Up-to-date maps and statistics in various resolutions, based on satellite imagery, clearly illustrate the distribution and provide further detailed information on the affected forest areas.

Data is available to everyone

The data from FNEWs is openly accessible. The maps, for example, are available as a web service. This means they can be integrated into standard geoinformation systems used by forestry authorities or third-party providers. In addition, the Thünen Institute offers an open API interface through which area statistics can be retrieved for individual analyses. "We are pursuing an open-data approach. All data is freely available to ensure transparency and promote scientific collaboration," says Thünen researcher Karsten Dunger from the FNEWs project.

Continuous development

The model used to generate the damage maps is continuously being optimised and validated. Consequently, new methodological improvements may also lead to retrospective adjustments in the results. Katja Oehmichen: "In this way, we ensure that damage in the forest is always recorded in accordance with the latest scientific standards and, at the same time, quality-checked."

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Press release from the Thünen Institute

Further information:

Interactive maps and statistics on the Thünen Institute's web portal

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Photos are available for download in the Newsroom.

Satellite observation supports research.
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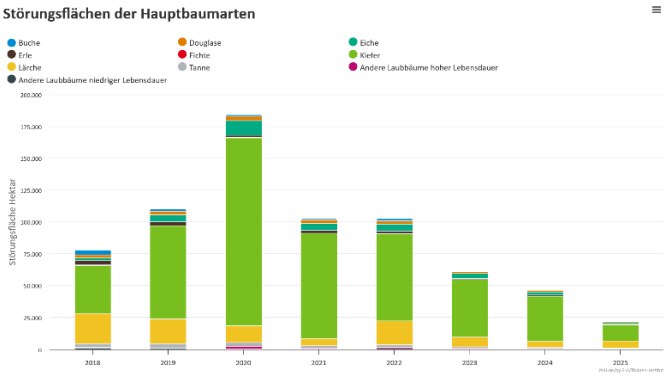

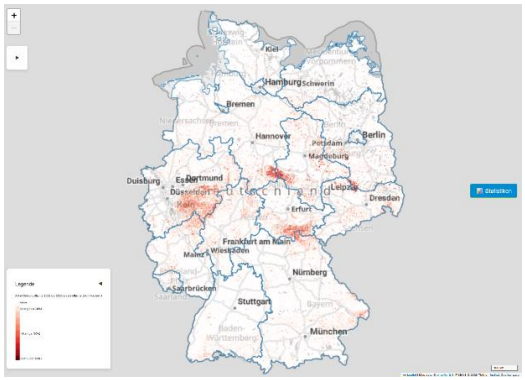

Left: Diagram showing areas of disturbance by main tree species and year of disturbance.© Thünen Institute/Karsten Dunger

Right: Map showing key areas of forest disturbance 2018–2025 dl-de/by-2-0/Thünen-Institut