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Uprooted trees prove extreme winds affecting forest structure

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A review of initial data showed mounds and pits on hill slopes, which provided significant evidence of how often extreme wind events occur. (Tyler Doane, Department of Earth and Atmospheric Sciences, Indiana University)

If you come across fallen over trees with displaced roots sticking out on your hikes in Indiana, a new Indiana University study says you are seeing a sign of extreme wind events.

Physically recording extreme wind temperatures can be challenging for scientists. Uprooted trees serve as a surprisingly helpful sign of extreme wind and how it can affect forest evolution.

Indiana University researchers used lidar surveys, which involved putting a high-tech instrument on drones flown of over 1,400 hill slopes in southern Indiana.

“We're like, ‘holy cow,’ we can see tree-throw or windthrow these uprooted trees in these landscapes. So, [we thought] let's start using this tool and seeing if we can learn something interesting,” said Brian Yanites, associate professor of Earth and Atmospheric Sciences and a co-author of the study.

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Known as windthrows, wind-toppled trees create gaps in forest canopy that affect forests’ structure and evolution.

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“When you're walking in the woods and you see one of these pit mound couplets, you can immediately interpret it as some record of an extreme event, which I think at least to me and I hope to many others, that is an idea that will drive curiosity,” said Tyler Doane, a co-author of the study.

The ability of forests to absorb carbon is an important factor in offsetting climate change. While it is hard to determine if climate change will cause winds to be more or less extreme, drastic changes in weather adds another layer of complexity to observing windthrow in the future.

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“Understanding that timescale of how these natural systems evolve and emerge over all the different events happening on Earth's surface just really helps us open our eyes and realize how precious the environment really is,” continued Yanites.

Using this new framework presented in the study can help answer outstanding questions regarding forests’ significant role in absorbing atmospheric carbon, said Yanites.

Source: https://indianapublicmedia.org/news/uprooted-trees-proof-of-extreme-winds-affecting-forest-structure.php