

Temperature found to be most significant driver of the world's tallest trees

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Understanding forest biodiversity and how carbon dioxide is stored within trees is an important area of ecological research. The bigger the tree, the more carbon it stores and a study in *New Phytologist* explores global variance in tree height, identifying temperature as the most important factor behind the tallest species.

Height gives canopy trees, the focus of much forest carbon research, a competitive advantage as they can place leaves at higher light levels while suppressing their competitors. Height also allows for wind-dispersed pollen and fruits to travel further.

The new study explores the role of temperature in driving tree height, a study which may allow us to forecast how forests adapt to climate change. The research examined the temperature-driven physiological model of tree height in order to explain the thermal climates in which the tallest individuals of the tallest tree species grow.

The tallest specimens of the world's nine tallest [tree species](#) were found to grow in climates with an unusually small seasonal temperature variation, which accounted for only 2.1% of global land area. In contrast their distance from the equator ranged from 3900 to 5500 km, their altitude above sea level from 50 to 1750 m, and the distance between the most distant localities ranged from 2700 km in Australia to 1400 km in western North America.

"It is amazing how little we know about the causes of global tree size

variation even though not knowing current variation makes predicting climate change caused changes difficult or impossible," said Markku Larjavaara. "If trees will get bigger in the future they will store more carbon than they do now and would therefore mitigate climate change."

More information: Markku Larjavaara, The world's tallest trees grow in thermally similar climates, *New Phytologist*, DOI: [10.1111/nph.12656](https://doi.org/10.1111/nph.12656), URL: [onlinelibrary.wiley.com/doi/10 ... 1/nph.12656/abstract](https://onlinelibrary.wiley.com/doi/10.1111/nph.12656/abstract)

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