Planting trees in Europe could lead to more rainfall

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A combined team of researchers from ETH Zurich, Institute for Atmospheric and Climate Science and Newcastle University, has found via statistical analysis and modeling that rainfall in Europe could be

increased by planting more trees. In their paper published in the journal *Nature Geoscience,* the group describes using data from rain gauges across Europe to build their models. Jessica Baker with the University of Leeds has published a News & Views piece in the same journal issue outlining the work done by the team on this new effort.

Prior research has suggested due to climate change, large parts of Europe could see less rainfall in the coming years. In this new effort, the researchers looked at what could happen in Europe if efforts to plant more trees were stepped up.

To learn more about the impact of forest growth on weather, and more specifically, rainfall amounts, the researchers collected historical rainfall data from multiple sites across Europe. Next, they paired data from rain meters in forested areas with data from agricultural areas as a way to compare rainfall amounts in areas that were otherwise nearly the same. They then used the data they had obtained to statistically analyze rainfall in the region to create rainfall models. The purpose of the models to was show how rainfall could be impacted under different scenarios, such as converting agricultural land back to forested land.

The researchers found that forested areas received more rainfall than agricultural areas. They also found that converting agricultural land to forested land would increase rainfall both locally and downstream. Expanding on this idea suggested that if agricultural land across Europe was converted to forest, the whole of Europe would see an increase in rainfall, even as the planet continues to grow warmer.

The researchers were not able to explain why forested areas get more rainfall, but suggest it might be due to the drag trees exert on moving air, slowing it down and giving more time for rain to develop.

More information: Ronny Meier et al, Empirical estimate of

forestation-induced precipitation changes in Europe, *Nature Geoscience* (2021). DOI: 10.1038/s41561-021-00773-6