

Chemical released by trees can help cool planet, scientists find

Scientists discover cloud-thickening chemicals in trees that could offer a new weapon in the fight against global warming

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Trees could be more important to the Earth's climate than previously thought, according to a new study that reveals forests help to block out the sun.

Scientists in the UK and Germany have discovered that trees release a chemical that thickens clouds above them, which reflects more sunlight and so cools the Earth. The research suggests that chopping down forests could accelerate global warming more than was thought, and that protecting existing trees could be one of the best ways to tackle the problem.

Dominick Spracklen, of the Institute for Climate and Atmospheric Science at Leeds University, said: "We think this could have quite a significant effect. **You can think of forests as climate air conditioners.**"

The scientists looked at chemicals called terpenes that are released from boreal forests across northern regions such as Canada, Scandinavia and Russia. The chemicals give pine forests their distinctive smell, but their function has puzzled experts for years. Some believe the trees release them to communicate, while others say they could offer protection from air pollution.

The team found the terpenes react in the air to form tiny particles called aerosols. The particles help turn water vapour in the atmosphere into clouds.

Spracklen said the team's computer models showed that the pine particles doubled the thickness of clouds some 1,000m above the forests, and would reflect an extra 5% sunlight back into space.

He said: "It might not sound a lot, but that is quite a strong cooling effect. The climate is such a finely balanced system that we think this effect is large enough to reduce temperatures over quite large areas. It gives us another reason to preserve forests."

The research, which will be published in a special edition of the Royal Society journal *Philosophical Transactions A*, is the first to quantify the cooling effect of the released chemicals. The scientists say the findings "must be included in climate models in order to make realistic predictions".

Because trees release more terpenes in warmer weather, the discovery suggests that forests could act as a negative feedback on climate, to dampen future temperature rise. The team looked at forests of mainly pine and spruce trees, but Spracklen said other trees also produce terpenes so the cooling effect should be found in other regions, including tropical rainforests.