# The bright ways forests affect their environment

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For decades scientists have tried to understand why forests emit the volatile gases that give pine forests their distinctive smell. A new study led by the University of Leeds may have found the answer.

Particles in the atmosphere scatter sunlight, causing light at the Earth's surface to come from many different directions rather than direct from the sun. This diffuse light benefits forests by illuminating leaves that would be shaded under direct sunlight.

The study, published in *Nature Geoscience*, found that volatile gases emitted by forests form particles in the atmosphere and increase the amount of diffuse light reaching the forests. Using computer simulations the team were able to show that this increased diffuse sunlight enhanced the carbon absorbed by the world's forests by an amount equal to 10% of global fossil fuel emissions and industry emissions.

Study lead author Dr. Alexandru Rap, from the School of Earth and Environment at Leeds, said: "Amazingly we found that by emitting volatile gases forests are altering the Earth's atmosphere in a way which benefits the forests themselves. While emitting volatile gases costs a great deal of energy, we found that the forests get back more than twice as much benefit through the effect the increased diffuse light has on their photosynthesis".

  **More information:** A. Rap et al, Enhanced global primary production by biogenic aerosol via diffuse radiation fertilization, *Nature Geoscience* (2018). DOI: 10.1038/s41561-018-0208-3

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