

Stanford professor discusses benefits and costs of forest carbon projects

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Recent international climate talks have focused on the potential of reforestation and afforestation - planting trees in an area where there was no forest previously - to slow global warming. Increasingly, though, science is showing that planting more trees and increasing forest conservation can provide benefits beyond carbon storage, and that carbon-centric accounting is, in many cases, insufficient for climate mitigation policies.

Robert Jackson, the Kevin and Michelle Douglas Professor of Environment and Energy at the Stanford School of Earth Sciences, will discuss recent research assessing the energy exchanges and climatic impact of vegetation replacement across North America. The work compares satellite-derived albedo, a measure of surface reflection; [land surface temperature](#); and evapotranspiration between adjacent vegetation types, specifically grasslands, croplands and different forest types.

"To be truly effective, forest carbon projects need to consider factors beyond [carbon storage](#)," said Jackson, a senior fellow at the Stanford Woods Institute for the Environment and the Precourt Institute for Energy. "Researchers are still working on how best to do that."

The [presentation](#), titled "Land-Use Change and Biophysical Accounting in Forest Carbon Projects," takes place Dec. 15 at 4:20 p.m. PT, at the American Geophysical Union's Fall Meeting in San Francisco, at the Moscone Convention Center, Moscone West, Room 3003.

Jackson and his fellow researchers have determined, among other findings, that where afforestation or reforestation occurs, deciduous broadleaf trees are likely to produce stronger cooling benefits than evergreen needleleaf trees provide in temperate ecosystems. They've also found that forestry activities will have the most climatic benefits at locations where background albedo prior to landscape change is low, snow cover is minimal, cloud cover is high and soil water is ample.

In his talk, Jackson will discuss how forests can help slow the buildup of greenhouse gases in the atmosphere while also providing beneficial biophysical feedbacks, and how many extra resources, including water and nutrients, may be needed to achieve this carbon storage and climate benefit.

Provided by Stanford University

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