

Atmospheric Signatures of Changing Global Biogeochemistry

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**RONALD AND MAXINE LINDE CENTER
FOR GLOBAL ENVIRONMENTAL SCIENCE**

Wednesday, February 4, 2015

4:00 PM Lecture

Sharp Lecture Hall, Arms Building
California Institute of Technology

We are now a century or more into the "large-scale geophysical experiment" of rising levels of greenhouse gases in the atmosphere. As this experiment slowly plays out, a major need is to track changes in land and ocean ecosystems which are impacted both by changes in physical climate and chemical climate (e.g. changing CO₂ levels).

One surprise is that land ecosystems seem to be acting as a sink for a significant fraction the excess carbon dioxide from fossil-fuel burning. The world's forests have evidently been thrown out of steady state by a range of processes and are accumulating carbon unusually.

In contrast, there is little evidence that marine ecosystems - at least those remote from coastal influences - have undergone such large changes. But it could be that we simply lack adequate observations of marine ecosystems. This talk will highlight progress toward resolving changes in both land and ocean ecosystems via measurements of atmospheric CO₂ and O₂.

This talk is in conjunction with the Southern Ocean Dynamics and Biogeochemistry Workshop, February, 2-5, 2015.

