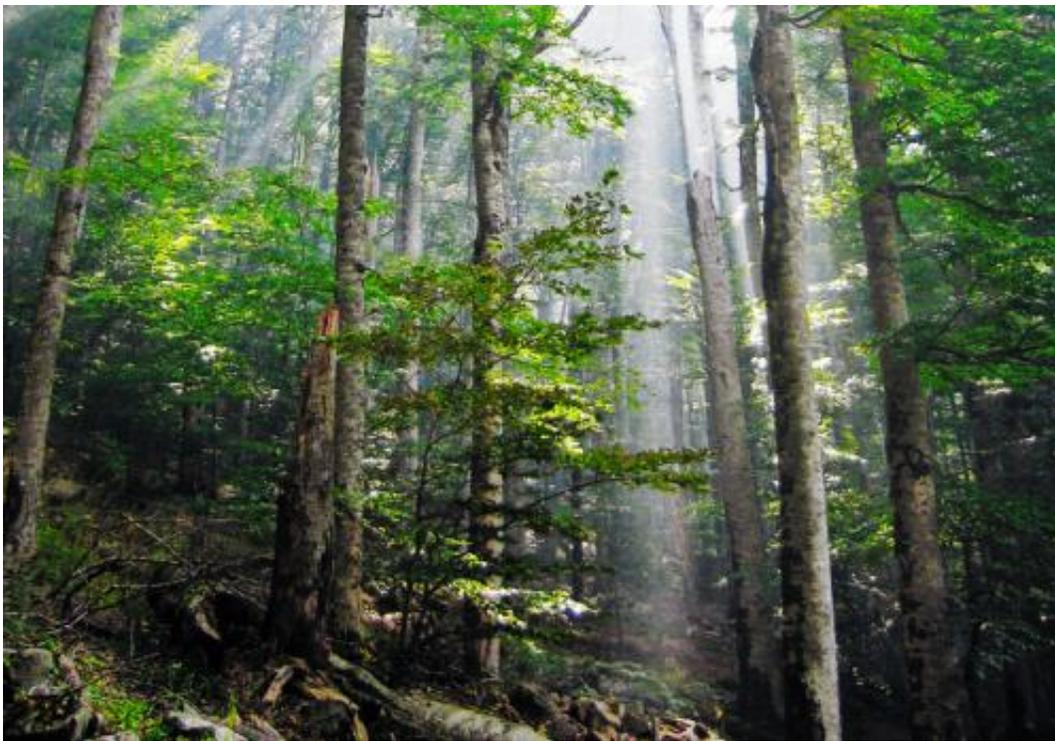


Study shows increase of CO₂ in the atmosphere is lower than predicted because of plants

October 14 2014, by Bob Yirka



Credit: Wikipedia.

A team of researchers in the U.S. claims that climate models used to predict the rise in CO₂ concentrations in the atmosphere are approximately 17 percent too high because they incorrectly approximate how much CO₂ plants pull from the atmosphere. In their paper published

in *Proceedings of the National Academy of Sciences*, the team describes how they studied the ability of plants to absorb increased amounts of CO₂ and discovered that they are capable of pulling more out of the atmosphere than has been previously thought and the difference is approximately equal to the error difference reported by simulation models.

Plants, as most people learn in grade-school, use light as part of the photosynthesis process to convert the sun's energy into energy the plant can use to grow—oxygen is then emitted as a byproduct. What's not really clear is how [plants](#) in general respond to the presence of more CO₂ in the air. Prior research has shown that some plants grow bigger, which tends to cause them to take in more CO₂.

Recently, it's come to light that [climate models](#) have on average been off a little bit in predicting how much CO₂ is being added to the [atmosphere](#) by man-made processes. More specifically, over the years, 1901 to 2010, that error rate has been found to be on average 17 percent too high, and scientists have been racing to figure out why.

In this new effort, the researchers took a new look at the photosynthesis process and how it might be altered in the presence of increasingly higher concentrations of CO₂. They found that as CO₂ levels rose, plants altered the way they processed the gas, saving more of it to use as a fertilizer, which allowed the plants to grow bigger or to become more robust, which in the end meant more CO₂ was taken out of the atmosphere. Not coincidentally, the researchers note, their research showed that when plants were exposed to the same higher levels of CO₂ as actually occurred over the past century, they were able to absorb on average 16 percent more CO₂, which very nearly coincides with the 17 percent error difference earth scientists have found with their climate models.

The research team suggests their results indicate that climate models need to be modified to take proper account of the behavior of plants as CO₂ levels rise.

More information:

www.pnas.org/content/early/2014/10/10/1418075111

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