Forests could flip from sink to source of CO2: study

April 17 2009, by Marlowe Hood

A view of a lowland rainforest on Sumatra, Indonesia. Forests that today soak up a quarter of carbon pollution spewed into the atmosphere could soon become a net source of CO2 if Earth's surface warms by another two degrees Celsius (3.6 degrees Fahrenheit), cautions a report to be presented Friday at the UN.

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Plants both absorb and exhale carbon dioxide, but healthy forests -- especially those in the tropics -- take up far more of the greenhouse gas than they give off.

When they are damaged, get sick or die, that stored carbon is released.

"We normally think of forests as putting the brakes on global warming," said Risto Seppala, a professor at the Finnish Forest Research Institute and head of the expert panel that produced the report.

"But in fact over the next few decades, damage induced by climate change could cause forests to release huge quantities of carbon and create a situation in which they do more to accelerate warming than slow it down."

Authored by 35 of the world's top forestry scientists, the study provides the first global assessment of the ability of forests to adapt to climate change.

Manmade warming to date -- about 0.7 C since the mid-19th century -- has already slowed regeneration of tropical forests, and made them more vulnerable to fire, disease and insect infestations. Increasingly violent and frequent storms have added to the destruction.

If temperatures climb even further, the consequences could be devastating, according to the report by the Vienna-based International Union of Forest Research Organisations (IUFRO).

"The current carbon-regulating functions of forests are at risk of being lost entirely unless carbon emissions are reduced drastically," said Alexander Buck, IUFRO's deputy director and coordinator of the report.

"With a global warming of 2.5 C (4.5 F) compared to pre-industrial times, the forest ecosystems would begin to turn into a net source of carbon, adding significantly to emissions from fossil fuels and deforestation," he told AFP by phone.

The UN's Intergovernmental Panel on Climate Change (IPCC) predicted in 2007 that average global temperatures would go up before 2100 by 1.1 C to 6.4 C (2.0 F to 11.5 F), depending on efforts to curb the gases that drive global warming.

Any increase of more than 2.0 C, the panel said, would unleash a maelstrom of human misery, including drought, famine, disease and forced migration.

Since the IPCC report, however, a growing number of climate scientists have said that this threshold is likely to be crossed no matter what actions are taken.

The forest assessment did contain what appears to be some good news: cold-clime boreal forests stretching across vast expanses of Russia, northern Europe, Canada and Alaska are set to expand rapidly as climate change kicks in.

But while this may be a boon for the timber industry, it is not likely to help curb global warming, it said.

"One might assume with the increasing growth in boreal forests that more carbon would be taken up by forest ecosystems and removed from the atmosphere," said Buck.

"But these positive effects will be clearly outweighed by the negative impacts on forest ecosystems."

The report urged international negotiators trying to hammer out a new global climate change treaty before the end of the year to take into account the potential impact of warming on forests.

Up to now, discussions on forests at the UN climate talks have focused

almost exclusively on the impact of deforestation.

The destruction of vegetation straddling the equator -- some 130,000 square kilometers (50,000 square miles) disappear every year -- accounts for nearly 20 percent of total carbon emissions.

"But it is also important to keep in mind that those forests that remain will be affected by climate change to a degree that might exceed their capacity to adapt," Buck cautioned.

The IUFRO report will be submitted to the UN Forum on Forests.

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