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In Brief

Brazil's carbon checkbook The carbon budget in Brazil may well be balanced. Regrowth of secondary forests in Brazil may sequester as much atmospheric carbon as is released from deforestation each year, according to a new study by scientists with the Environmental Protection Agency (EPA) in Corvallis, Ore. Recent studies have shown that the deforestation rates overall have been slowing down in Brazil. But the earlier studies mainly focused on gross releases of carbon caused by deforestation in the Amazon basin and generally concluded that there was a net annual loss of carbon. The new study estimates both the CO₂-C emissions from changes in land use and uptake by regrowing forests across Brazil, which are key components of the global carbon cycle. The EPA scientists found that net carbon accumulation was greater than measurements taken

in previous years, on the basis of an ERL-C model of ecosystem carbon storage and flux, a remote sensing vegetation map, and published data on various carbon parameters. If the findings from this study are confirmed in other biogenic assessments in the tropics, the mystery of the missing carbon sink may be solved: Secondary forest growth may be the culprit, says EPA program leader David Tingey.

M E E

Scientists Study Canadian Forests' Impact on Climate Change

U.S., Canadian, and European scientists have moved into the second phase of a five-part study of Canadian forests and the role these forests play in climate change.

Dubbed the Boreal Ecosystem-Atmosphere Study (BOREAS), the large-scale ground-based and remote-sensing investigation seeks to better understand how the forests and atmosphere exchange energy, heat, water, carbon dioxide, and other trace gases. From these findings, the researchers will develop better computer models to allow scientists to anticipate the effects of climate change on the region and across planet Earth.

From April 11 to May 2, as part of the second of the five BOREAS campaigns, about fifty scientists studied the forests during the annual snowmelt. They concentrated on processes in the soil, vegetation, and lower atmosphere that occurred as the Earth's surface warmed and snow melted.

Readings from ground and aircraft investigations from this second campaign, called the Focused Field Campaign-Thaw (FFC-T), will also be compared with spaceborne data,

recently collected by the first flight of the Space Radar Laboratory (SRL) that was carried out aboard the Space Shuttle Endeavour.

BOREAS and SRL are part of NASA's Mission to Planet Earth, the agency's long-term program to study the Earth as the single environmental system that it is. In addition to studying how Earth's global environment is changing, Mission to Planet Earth seeks to distinguish human-induced changes from natural ones. Data from the program will be distributed to researchers worldwide.

The BOREAS thaw campaign is primarily interested in how the Sun's energy heats the vegetation, snow, and underlying soil to produce melting and release gases, including carbon dioxide and methane, into the atmosphere. Increasing atmospheric concentrations of these gases may affect Earth's climate and weather.

Along with being used to improve the global environment model, scientists will use the collected data to enhance global weather prediction models. During the next 3 years, scientists from the eighty-five BOREAS science teams will analyze the data from the study.

The scientists will use specialized equipment to measure the exchanges of heat, radiation, water, and carbon dioxide between the surface and the atmosphere, while others will take high-resolution images of the study sites, as Earth-observing satellites pass over.