Smithsonian Tropical Research Institute

Mar. 18, 2010

English language media: Beth King, kingb@si.edu
703-487-3770 x 8216 or +507-212-8016 (direct, Panama),
Spanish language media: Monica Alvarado, alvaradom@si.edu
703-487-3770 x 8023 or +507-212-8023

HSBC Climate Partnership yields initial research findings

Researchers from the Smithsonian Tropical Research Institute and Earthwatch met last week to present mid-term research results from the HSBC Climate Partnership, a five-year initiative to identify and respond to the impacts of climate change. The program is supported financially by HSBC and involves a global team of bank employees – 'climate champions' – in vital forest research.

The first-ever research program of its kind has so far:

- Found rapid increases in tree growth in the forest around the Smithsonian's Environmental Research Center (SERC) in Maryland, USA, a finding attributed to increased atmospheric carbon dioxide and longer growing seasons, published in PNAS.
- Proposed a novel biodiversity theory relating stress and seed-size published in PNAS.
- Examined the effects a changing climate in forests is having on white-tailed deer, mice and even mosquitoes.
- Addressed the lack of a reliable method for estimating the carbon storage capability of secondary forests on a landscape scale by assessing how measurements from airborne LiDAR and other remote sensing technologies relate to ground-based measurements.
- Reviewed how human disturbance changes the way forests take up carbon in diverse environments.

Researchers working in broadleaf forest plots near Oxford, England, Atlantic rainforests in Southern Brazil and subtropical forests near Gutianshan Nature Reserve in China, as

well as the SERC site in Maryland, have been putting HSBC employees to work. At Oxford, for example, data collected indicates that changes in forest structure have impacted moth populations.

Stuart Davies, director of the Smithsonian's Center for Tropical Forest Science, says, "We know that carbon dioxide in the atmosphere has shot up from 280 to 385 parts per million since the 1850's as a result of human activities like the burning of fossil fuels and deforestation. The degree to which atmospheric carbon dioxide levels continue to increase depends, in part, on how trees respond to climate and atmospheric change – whether forests end up storing more or less carbon. This is what the HSBC Climate Partnership research is trying to establish."

Dan Bebber, head of climate change research at Earthwatch, says, "Human activities are undeniably changing the world's climate, but the effects of that change on forest ecosystems and the role that forests play in providing ecosystem services such as carbon storage are poorly understood. The research being supported by funding and climate champions from HSBC will help to increase our knowledge of forests, and how they can be wisely managed for the future. This unique NGO-corporate partnership is an exemplary model of how individuals and businesses can make a difference."

STRI staff scientist Helene Muller-Landau said: "The HSBC Climate Champions working with us to measure trees understand how to take stock of carbon balances. Trees take up carbon as they grow. As trees die and decompose, they release carbon. The balance of carbon flows in and out of the forest determines whether the total forest carbon stock increases or decreases over time."

"Dangerous and irreversible changes that threaten life-support systems are likely when atmospheric carbon levels reach 550 ppm, if not sooner," stressed Yavinder Malhi, research scientist from Oxford University. "It's our job to engage people in science in a way that balances keeping things simple while showing that forests, as living systems, may be really complicated, taking up carbon under some conditions and giving off carbon under other conditions."

Research in Peru reveals how forest carbon budgets change with temperature from cooler mountainous sites to warmer lowland sites. Muller-Landau and Malhi agree that because different tree species respond differently to changing temperatures and

rainfall regimes, some species will thrive while others will decline, resulting in changes in forest tree species composition and probably in carbon stocks.

Another important topic of discussion at the conference was the HSBC-sponsored Panama Canal Watershed Experiment, nicknamed the Agua Salud Project. This huge experiment aims to establish how different land uses - pasture, grass, native tree plantations, teak or mature forest - affect carbon storage, water flow throughout both wet and dry periods during the year and biodiversity on the narrow Isthmus of Panama, where two great biodiversity hotspots meet. STRI Director Eldredge Bermingham noted "that locating this experiment on the banks of the Panama Canal aims to focus global attention on the ecosystem services that forests provide this critical commercial waterway."

The Smithsonian Tropical Research Institute, headquartered in Panama City, Panama is a unit of the Smithsonian Institution. The institute furthers the understanding of tropical nature and its importance to human welfare, trains students to conduct research in the tropics and promotes conservation by increasing public awareness of beauty and importance of tropical ecosystems. www.stri.org

The Center for Tropical Forest Science of the Smithsonian Tropical Research Institute monitors some of the most astonishing forests on the planet. The world's largest tropical forest research program, CTFS comprises a global network of large-scale, long-term studies that together track the growth and survival of more than 3 million tropical trees. For more information, visit http://www.ctfs.si.edu/doc/index.php.

Earthwatch is an international environmental organization whose mission is to engage people worldwide in scientific field research and education to promote the understanding and action necessary for a sustainable environment. www.Earthwatch.org/hcp

The HSBC Climate Partnership, launched in 2007, is a five year commitment between HSBC and four global charities (STRI, Earthwatch, The Climate Group and WWF) to engage HSBC employees as hands-on "Climate Champions" in the U.S., China, India, the U.K. and Brazil. http://www.hsbc.com/1/2/sustainability/investing-in-communities

See the video:

http://www.ctfs.si.edu/group/HSBC+Climate+Partnership/Videos#

See videos of the presentations at the Taking Stock Conference:

http://biogeodb.stri.si.edu/bioinformatics/dfm/metas/search/stxt:SIGEO_TAKING%20STOCK/type:Video