

# I N B R I E F

## OCEAN SCHEMING

**C**limos, a company that has staked its fortunes on removing carbon from the atmosphere, is seeking another \$10 million to test ocean iron fertilization in the Southern Ocean, despite a United Nations ban on the practice. Faced with negative science and mounting international opposition, 191 countries at a May 30 U.N. Convention on Biological Diversity (CBD) temporarily banned further ocean fertilization except small, non-commercial projects in coastal waters.

The process involves dumping dissolved iron into nutrient-deficient waters so that phytoplankton will bloom and, during photosynthesis, sequester millions of tons of carbon dioxide from the atmosphere. Blowing iron dust from continents feeds the single-celled plants in the north, resulting in lower phytoplankton numbers in the Southern Ocean. But findings published in the *Journal of Geophysical Research* last year showed that by bypassing natural processes, significantly less carbon sinks to the ocean depths than commercial interests have claimed.

Climos raised \$3.5 million earlier this year to sell carbon credits to companies that pay for iron fertilization. Founder and CEO Dan Whaley says that a 100 km test iron dump in the Southern Ocean is still planned for late 2009. Whaley points to a June 12 report signed by the scientific academies of 13 nations that says global climate change demands suspension of the usual scientific caution.

“Having the 13 major national academies openly support research into geoengineering—and then clarifying that they meant CO<sub>2</sub> mitigation, like ocean iron fertilization—is a significant counterpoint to the CBD statement,” Whaley says.

Climos has been waiting to hear from another U.N. body, the Interna-

tional Maritime Organization (IMO), which asserted authority in 2007 and plans to release a report on iron fertilization sometime in 2008.

The 60-year-old IMO regulates shipping and ocean pollution, which may or may not mean authority over fertilization schemes. “We are actually hoping the IMO is able to establish its authority,” Whaley says. “We want a thoughtful permitting process we can engage with. We do not want to be cowboys.”

Whaley says the cost of the tests is prohibitive for anyone not hoping to make a profit by selling carbon credits to industry, a process regulated for U.S. firms by the Environmental Protection Agency. Planktos, the company’s leading competitor, announced in February that it was indefinitely suspending its ocean iron program, blaming a “disinformation campaign.”

But there is significant money to be recouped. Dr. Hauke Kite-Powell of the Marine Policy Center at the Woods Hole Oceanographic Institution has said that ocean fertilization is likely to be a \$100 billion piece of the emerging worldwide carbon trading market.

CONTACTS: Climos, [www.climos.com](http://www.climos.com); International Maritime Organization, [www.imo.org](http://www.imo.org); Woods Hole Oceanographic Institution, [www.whoi.edu](http://www.whoi.edu).

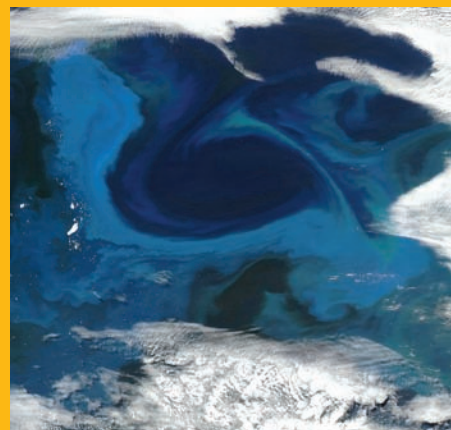
—Frank Hartzell

## Welcome to Neutral Town

**C**an an entire town turn carbon neutral? The village of Ashton Hayes, England (population 1,000), thinks so, and is in the process of becoming the first town in the world with zero net carbon emissions.

“As a community we felt that it was important to set off on the journey towards carbon neutrality, because so many people are talking and not doing anything,” says Ashton Hayes resident and project originator Garry Charnock. He hatched the idea in November 2005, and received such strong community support that he took the idea to the

*Phytoplankton blooms appear as bright aqua patches in these aerial shots.*





*The village of Ashton Hayes, England, has committed to going carbon neutral.*

as a model of sustainability, including highly efficient Leadership in Energy and Environmental Design (LEED) Platinum designation for all city buildings, significant walkability and the use of wind energy and solar panels. This past summer, the small town of Rock Port, Missouri (population 1,300), became the first in the nation to operate solely on wind power, harvesting wind from 75 turbines across three counties.

The Going Carbon Neutral Project has produced literature and videos for interested communities to help them begin a carbon neutral commitment.

“So far we have spoken to over 100 communities who have asked us to visit them,” says Charnock. “We now have friends doing the same thing in Canada, Australia, Norway, Romania and Mauritius. Sadly, the U.S. seems to be a few years behind us all.”

CONTACT: The Going Carbon Neutral Project, [www.goingcarbonneutral.co.uk](http://www.goingcarbonneutral.co.uk). —Drew Pogge

parish council as a formal proposal. When 75% of adult residents attended the first meeting, the Going Carbon Neutral Project was born.

First, students of the University of Cheshire conducted a survey to measure the village’s total annual emissions. Some residents installed solar panels and more energy-efficient appliances, but most took less drastic steps. “We have seen a drop in the number of flights, more walking and cycling and increased recy-

cling,” Charnock says. “Most people have saved money on fuel bills, and it has definitely brought the community together.” The result is a 20% reduction in total emissions since last year, with more progress on the way.

Other communities are following suit, although not all with such lofty goals. In the U.S., the town of Greensburg, Kansas, which was obliterated by a tornado on May 4, 2007 (95% of homes and businesses destroyed), is rebuilding

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## Winds of Change at Logan Airport

The Massachusetts Port Authority is exploring the possibility of using wind power to generate electricity at Logan Airport. Its demonstration project—the installation of 20 building-integrated turbines at the Logan Office Center—began at the end of February. By late May, debugging was complete.

Over the next year, they'll evaluate the project's total electrical generation and decide whether the turbines can be used effectively throughout the entire airport. The initial data looks promising.

"We are on the harbor and anticipate that wind speed—from two to 120 miles per hour [mph]—will be enough to generate approximately 90,000 kilowatt hours [kWh] of electricity annually," says Terry Civic, manager of Massport's Utilities Control. "That output would be 2% of the office building's monthly energy use, a \$13,000 annual savings for Massport."

While data collection will take 12 months, start-up and installation have offered valuable first lessons. They found that short, square rectangular buildings work best for siting the turbines, and that building location played a big role in turbine effectiveness.

"Turbines can move about 60%, which means they can actually pick up wind from behind," Civic says. "But wind—hopefully 15 mph or more—that hits the building, and thus the turbines, face-on is best."

The entire investment was \$150,000 or \$6,500 to \$7,500 per turbine, each of which stands six feet tall and is eight feet at the base. With shorter support towers and reduced noise and vibration, these smaller turbines made by AeroVironment of California, adapt easily to buildings. They're also at Duluth County Courthouse in Minnesota and Kettle Foods Factory in Wisconsin, among other spots.

Massport representatives attended an Earth Day conference in Dallas this past spring, and generated a lot of interest in their renewable energy measures. Since then, Civic learned that an airport in Manchester, U.K., has called AeroVironment to install one test turbine. "We are very interested in sharing data with other interested parties, so they can look at the technology and have raw data to evaluate," she says.

CONTACTS: AeroVironment, [www.avinc.com](http://www.avinc.com); Groom Energy Solutions, [www.groomenergy.com](http://www.groomenergy.com); Massport, [www.massport.com](http://www.massport.com). —Judith E. Allen

His daughter  
told him  
his farm was  
for the birds



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Eldon, Wendell, Harlan, and Homer Lundberg

One day, when Wendell Lundberg was out driving his daughter Jessica around his rice fields, she told him something that changed his life forever. She pointed out that the land he was farming was originally for the birds, not for rice. That started him thinking. So much so, that he started farming with bird habitats in mind. Today, Jessica is the Chair of the Board. Pretty smart kid.

Wendell and his three brothers Eldon, Harlan and Homer have been growing rice sustainably in Richvale, California since they were kids. Their father, Albert Lundberg, taught them a simple lesson: leave the land better than when you first arrived.

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For more of the story go to [www.lundberg.com](http://www.lundberg.com).



The new turbines at Logan Airport.

## Chasing the Chestnut

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Efforts to save the American chestnut go beyond ecology. “We’ve lost the American elm and the flowering dogwood, yet all this effort is going into this one particular species,” says Dr. Brian McCarthy, the secretary of The American Chestnut Foundation’s (TACF’s) Ohio chapter, and a professor at Ohio University. “Chestnuts are one of the symbols of this country, right up there with Mom and apple pie, and losing the species would be like losing a part of American history.”

The American chestnut, which was virtually eliminated from Appalachian

200,000 acres of sandy Ohio land formerly used in strip-mining operations.

At the State University of New York’s School of Environmental Science and Forestry (SUNY-ESF), Dr. William Powell’s lab is investigating the genes that offer resistance to the chestnut blight. His group has also genetically engineered blight-resistant American chestnuts using a gene that comes from wheat. Their research may lead to blight-resistant chestnut trees being planted in as little as five years.

Not all efforts to save the chestnut rely on importing new genes into the species. The American Chestnut Cooperators Foundation (ACCF) is working with Virginia Tech and Concord College researchers to find native chestnut trees showing some blight resistance and breeding those individuals. The results are still being evaluated, but the effort is important to those who wish to maintain a genetically pure strain of the species.

“With climate change, we really need to keep as many species as possible,” says Dr. Bob Grese of the University of Michigan’s School of Natural Resources and the Environment. “Even if the trees aren’t 100% genetic-

ly pure American chestnuts, we need to keep what we can, and not let the American chestnut slip away.”

CONTACTS: American Chestnut Cooperators Foundation, [www.accf-online.org](http://www.accf-online.org); The American Chestnut Foundation, [www.acf.org](http://www.acf.org); American Chestnut Research and Restoration Project, [www.esf.edu/chestnut](http://www.esf.edu/chestnut).

—Brian Collieran



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The Chinese chestnut (left) is resistant to the blight that decimated the American chestnut (right) in the early 1900s.

forests in the early 20<sup>th</sup> century by the chestnut blight pathogen, is being restored through several innovative programs around the country. Since 1983, TACF has been working on a hybridization program to transfer the Chinese chestnuts’ resistance to the blight to the American chestnut. McCarthy has found the ideal setting for the chestnut’s reintroduction, too:

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