



Northern Climate ExChange

Independent Information - Shared Understanding - Action on Climate Change

NCE Update October 14, 2009



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Announcements

1. 'The Age of Stupid' - **FILM SCREENING POSTPONED**

Due to circumstances beyond our control, we regret to inform you that the screening of "The Age of Stupid" www.ageofstupid.net has been postponed until:

NEW DATE: THURSDAY OCTOBER 15, 2009

NEW LOCATION: Yukon College Gym (Behind the Yukon Archives)

Doors open at 6:30 p.m.
Show starts at 7 p.m.

'The Age of Stupid' is the new cinema documentary from the Director of 'McLibel' and the Producer of the Oscar-winning 'One Day In September'. This enormously ambitious drama-documentary-animation hybrid stars Oscar-nominated Pete Postlethwaite as an old man living in the devastated world of 2055, watching "archive" footage from 2008 and asking: **why didn't we stop climate change while we had the chance?**

www.taiga.net/nce

2. Dawson Adaptation Plan Open House - October 19, 2009

The **Northern Climate ExChange** (NCE) will be holding an Open House on October 19th to review and accept feedback from the Community of Dawson



on the second draft of the **Dawson Adaptation Plan**.

Come see how Dawson residents may be vulnerable to climate change and what adaptations were proposed by the community to create an effective response strategy.

We will also announce which adaptation projects have been accepted by the Dawson Local Advisory Committee for implementation over the next year.

The Open House will be held at the Tr'ondëk Hwëch'in Community Hall from 5:00-9:00 pm.

For more information, contact:

[Sebastian Jones](#), Dawson Adaptation Coordinator
Northern Climate ExChange, Yukon College
(867) 993-4401

www.taiga.net/nce

3. NEW DATE - October 20, 2009 Webinar | Alliance for Resilient Cities: Community Adaptation Planning in Yukon

The **Northern Climate ExChange's** Community Adaptation Project Manager, Ryan Hennessey, will be presenting a webinar on community adaptation planning in Yukon to the **Alliance for Resilient Cities/Clean Air Partnership (CAP)**.

Ryan will discuss the ongoing **NCE Community Climate Change Adaptation Project (CCCAP)**, including some of the details of how the plan was developed, some of the challenges that the planning team has experienced and next steps for CCCAP in 2009/10.

Communities and interested persons wishing to participate in the webinar, should pre-register by contacting arc@cleanairpartnership.org

Details about the webinar can be found on the CAP website:

<http://www.cleanairpartnership.org/arc>

4. 'Hug the Legislature' for Action on Climate Change - October 24

Bringing Youth Towards Equality (BYTE) and the **Canadian Youth Climate Coalition** invite Whitehorse citizens of all ages to stand in solidarity with tens of thousands of Canadians in Ottawa and across the nation as part of a global campaign to request that our national governments take decisive action on Climate Change at the upcoming UN Climate Conference in Copenhagen this December 2009.

On October 24th at noon, 350 people in Whitehorse will gather together to form a standing circle, hand-in-hand, around the Yukon Legislative Building on 2nd Avenue to send a powerful message to our government that Yukoners want Canada to take responsibility and leadership on acting to curb climate change.

350 is the number that climate scientists say is the acceptable upper limit for carbon dioxide-measured in "parts per million" in our atmosphere.

Sign up and commit to be one of the 350!

To get your designated number;

1. drop by the **BYTE** office (#2-407 Ogilvie Street),
2. phone 667-7975,
3. visit www.yukonyouth.com or
4. e-mail events@yukonyouth.com.

For more information, please contact: Matthew Koop-Pearce
Bringing Youth Towards Equality at 867-667-7975

www.350.org/node/7609

5. PCIC Seminar Presentations - October 21, 2009

Dr. Robert Gifford, Professor, Department of Psychology, University of Victoria

"Changing Climate Change Behaviour: Individual-level Barriers and Solutions"

WHEN: October 21, 2009
TIME: 2:00 pm - 3:00 pm
PLACE: Sedgewick Bldg. Room C168, University of Victoria

Seminars will be available via live webcast at <http://www.pics.uvic.ca/broadcast.php>. You will also be able to download the speaker's presentation from this site just before the seminar.

www.pacificclimate.org

6. Call for Proposals 2010-2011: The Climate Change and Health Adaptation Program - Northern First Nations and Inuit Communities.

The Climate Change and Health Adaptation Program is now accepting proposals from Northern First Nations and Inuit Communities for the 2010-2011 fiscal year. The Climate Change and Health Adaptation Program funds community-centred research, where the research is done by community members/organizations for the benefit of their community.

For more information and how to apply, contact:
Erin Myers, Program Officer, Health Canada
(613) 957-2490 or e-mail erin_myers@hc-sc.gc.ca

Deadline for Applications is January 24th, 2010

Articles

1. Arctic land and seas account for up to 25 percent of world's carbon sink

New study shows that Arctic has potential to alter Earth's climate

EurekAlert
October 14, 2009

In a new study in the journal *Ecological Monographs*, ecologists estimate that Arctic lands and oceans are responsible for up to 25 percent of the global net sink of atmospheric carbon dioxide. Under current predictions of global warming, this Arctic sink could be diminished or reversed, potentially accelerating predicted rates of climate change.

In their review paper, David McGuire of the U.S. Geological Survey and the University of Alaska at Fairbanks and his colleagues show that the Arctic has been a carbon sink since the end of the last Ice Age, which over time has accounted for between zero and 25 percent, or up to about 800 million metric tons, of the global carbon sink. On average, says McGuire, the Arctic accounts for 10-15 percent of the Earth's carbon sink. But

the rapid rate of climate change in the Arctic - about twice that of lower latitudes - could eliminate the sink and possibly make the Arctic a source of carbon dioxide.

Carbon generally enters the oceans and land masses of the Arctic from the atmosphere and largely accumulates in permafrost, the frozen layer of soil underneath the land's surface. Unlike active soils, permafrost does not decompose its carbon; thus, the carbon becomes trapped in the frozen soil. Cold conditions at the surface have also slowed the rate of organic matter decomposition, McGuire says, allowing Arctic carbon accumulation to exceed its release.

But recent warming trends could change this balance. Warmer temperatures can accelerate the rate of surface decomposition, releasing more carbon into the atmosphere. More concerning, says McGuire, is that the permafrost has begun to thaw, exposing previously frozen soil to decomposition and erosion. These changes could reverse the historical role of the Arctic as a sink for carbon.

"In the short term, warming temperatures could expose more Arctic carbon to decomposition," says McGuire. "And with permafrost melting, there will be more available carbon to decompose."

On the scale of a few decades, the thawing permafrost could also result in a more waterlogged Arctic, says McGuire, a situation that could encourage the activity of methane-producing organisms. Currently, the Arctic is a substantial source of methane to the atmosphere: as much as 50 million metric tons of methane is released per year, in comparison to the 400 million metric tons of carbon dioxide the Arctic sequesters yearly. But methane is a very potent greenhouse gas - about 23 times more effective at trapping heat than carbon dioxide on a 100-year time scale. If the release of Arctic methane accelerates, global warming could increase at much faster rates.

"We don't understand methane very well, and its releases to the atmosphere are more episodic than the exchanges of carbon dioxide with the atmosphere," says McGuire. "It's important to pay attention to methane dynamics because of methane's substantial potential to accelerate global warming."

But uncertainties still abound about the response of the Arctic system to climate change. For example, the authors write, global warming may produce longer growing seasons that promote plant photosynthesis, which removes carbon dioxide from the atmosphere; however, increasingly dry conditions may counteract and overcome this effect. Similarly, dry conditions can lead to increased fire prevalence, releasing even more carbon.

McGuire contends that only specific regional studies can determine which areas are likely to experience changes in response to climate change.

"If the response of the arctic carbon cycle to climate change results in substantial net releases of greenhouse gases, this could compromise mitigation efforts that we have in mind for controlling the carbon cycle," he says.

This study was sponsored by the Arctic Monitoring and Assessment Program, the Climate in the Cryosphere Program, and the International Arctic Science Committee.

www.eurekalert.org

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2. Thaw scars widespread across northern lands

By Ned Rozell
The Bristol Bay Times
October 8, 2009

One month ago, I wrote about a dramatic landscape feature in Western Alaska called the Selawik Slump. The slump, caused by thawing permafrost, looks like a bomb crater leaking mud from the boreal forest into a clear northern river. There are dozens of them in northern Alaska, though none as big as the one on the Selawik River.

There are also many of these beacons of change in the Yukon Territory, according to Doug Davidge of Whitehorse, who read the Selawik column in the Yukon News. A few years ago, Davidge was flying over the Peel River country east of Eagle Plains for work when he saw a gaping wound on a hillside. Scientists once described these features as "tundra mudflows." They now call them retrogressive thaw slumps.

"We flew over some very dramatic looking retrogressive thaws, and we could pick out other ones as we flew along," he said. Davidge snapped a photo of the largest thaw slump he and the pilot noticed, near a drainage called Bonnet Plume. Though not as large, it looks similar to the feature that is now clouding the Selawik River. Retrogressive thaw slumps form when warm air eats at permafrost that contains large bodies of ice. The features often develop when a river cuts into a frozen bank on an outside bend.

As ice and frozen soil thaw back into a bank or hillside, more and more of the ground collapses in on itself, leaving a crater of churned soil backed by a steep, frozen headwall. That wall retreats over time, mud flows downhill and often into rivers, and the slump grows.

Though it's not part of Davidge's job for Environment Canada, the giant scar on the landscape intrigued him enough to send him to Google Earth on his own time to search for more of the characteristic scoops missing from hillsides along the remote Peel River drainage. He found a lot of them.

"I don't have the total count in front of me," he said from his office in Whitehorse. "I keep adding them to the list, but it's probably in the range of 200 or so. ... There are many other huge ones out there."

Yukon Geological Survey geologist Panya Lipovsky has studied the retrogressive thaw slumps for a few years in central and southern Yukon. One of the more interesting ones she's encountered is 60 miles north of the town of Ross River on the South MacMillan River; it's known as the Surprise Rapids Slide.

"That's the biggest one I'm aware of," she said, also from her office in Whitehorse. "It's about (2,300 feet) wide and has traveled up to about (1½ miles from the hillside to the river). It may have been triggered by a forest fire in the 1870s and still hasn't stabilized in more than 100 years. The headwall keeps melting back."

Some of the slumps she has observed are recent, and some date back more than a century. They may be related to forest fires, intense rainfall, meandering rivers, and/or warming air temperatures, she said. One of the more active periods for the Surprise Rapids Slide happened in the 1940s, when the central Yukon had record high early summer temperatures, according to Brent Ward of Simon Fraser University.

Lipovsky knows of slumps that are eating into hillsides at the rate of 30 feet per year. Some have altered the flow of rivers and have clouded them up with their runoff, but she hasn't heard of any troubling people in the Yukon, as the Selawik Slump might be affecting the people of Selawik should cloudy water damage sheefish spawning grounds.

There aren't many scientists who are studying these eye-catching northern expressions of permafrost lost, but thaw slumps may draw more attention as they continue to express themselves on the less-frozen northern landscape.

"We've only just started keeping an inventory of these things in the last couple years," Lipovsky said.

Ned Rozell is a science writer at the Geophysical Institute at the University of Alaska Fairbanks.

www.thebristolbaytimes.com

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3. Arctic voyagers reach Halifax

CBC News
October 10, 2009

Three sailors who crossed the Northwest Passage this summer completed the final leg of their journey Saturday in Halifax harbour.

Canadian Cameron Dueck and two Germans set sail from Victoria in early June, hoping to raise awareness about the impact of climate change in the Arctic.

The 40-foot fibreglass yacht, Silent Sound, is one of the smallest vessels to sail the passage without the aid of an icebreaker, said Dueck. But such crossings are becoming more common as the summer ice in the Arctic continues to retreat, he said.

Based on conversations with dozens of people the crew met during their journey, there's no question global warming is causing major changes in the North, said Dueck.

Native communities used to rely on the pack ice to get out to their traditional hunting grounds, but now it's harder to count on, he said.

"It seems like those things don't apply anymore because the ice is moving faster, it's breaking up faster, it's just much more dangerous and unpredictable. And we heard that story again and again, every hunter we spoke to."

Dueck, who grew up in Manitoba and now lives in Hong Kong, came up with the idea of the Open Passage Expedition in 2004 when Al Gore was raising awareness about global climate change.

He documented his travels on a website and is working on a documentary film, both of which he hopes will help tell the story of global change in the North.

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4. Russian climate goal weak as "methane bomb" ticks

By Amie Ferris-Rotman

Reuters

October 9, 2009

MARRESALE, Russia (Reuters) - The snows are late in coming on the Arctic Yamal peninsula where moist, dark permafrost entombed for 10,000 years crumbles into the sea at the top of the world.

Western scientists and environmentalists say collapsed river banks, rising tide waters and warmer winters in northwest Russia are clear signs of climate change, but they add Russia is in denial, ignoring a potentially disastrous "methane bomb".

At a state-run meteorological station at the Marresale port on the Kara Sea, around 500 km (311 miles) north of the Arctic Circle, its director said migrating geese arrived a month earlier than usual this year, in May, as temperatures rose.

Over the last six years that Alexander Chikmaryov has worked at the station, the sea coast has eroded by at least 2 metres (6.5 feet) and hungry polar bears seeking alternative food have clawed into tins of condensed milk in his wife's pantry.

The first snows usually fall by late September.

As a string of recent reports warn of dire consequences from global warming, the U.N. wants about 190 nations to agree a new climate pact in December in Copenhagen to succeed the Kyoto protocol.

But for Chikmaryov, global warming does not exist: "Whoever made that ridiculous idea up spends too much time at home," said the 58-year old, surveying an exposed strip of permafrost from a mud bank that has collapsed, giving way to streamlets littered with goose skeletons.

Geographer Fyodr Romanenko of Moscow State University agreed there is no proof human activity has damaged the environment. The up to 4 degree Celsius (7 Fahrenheit) rise felt across parts of the Arctic in the last 30 years could be part of millennia-old fluctuating weather patterns, he said.

Other researchers disagree, saying the frozen, sparsely populated Yamal region 2,000 km (1,250 miles) northeast of Moscow holding a quarter of the world's known gas reserves and home to the Nenets tribespeople, is testament to climate change.

According to a paper in the scientific journal *Global Change Biology* published this week by Bruce Forbes of Finland's Arctic Centre, rising temperatures are making the Arctic tundra greener, adding significant growth of shrub willows over the last thirty years.

Melting Permafrost

The world's largest country has a thick band of permafrost -- which contains organic matter whose microbes can emit the powerful greenhouse gas, methane -- stretching from Murmansk near Finland to the far eastern region of Chukotka near Alaska.

Environmentalists fear melting permafrost from rising temperatures will accelerate global warming. "We are appealing to world leaders as this issue is overlooked in Russia... there is a carbon, or methane bomb embedded in our earth," Vladimir Chuprov, head of the Russian energy unit at environmental group Greenpeace, told Reuters.

He added that Russia -- which has permafrost covering 60 percent of its land -- most likely holds the world's biggest methane threat. By 2050, vast amounts of methane will "explode into the air" from Russia's melting permafrost, Chuprov said.

The United Nations panel of climate scientists says warming is happening faster in the Arctic than the global average. As reflective snow and ice retreats, it exposes darker ground and water that soaks up ever more heat. "Methane emissions from tundra are likely to accelerate," it said in a 2007 report.

Ed Miliband, Britain's Secretary of State for Energy and Climate Change, said earlier this week in Moscow that it was in Russia's interest to reduce carbon emissions.

"Unchecked global warming will be bad for Russia," he told reporters. "There are 5,000 miles of rail track built on permafrost, which will crumble as a result of this melting".

Copenhagen

So far, rich nations have offered emissions cuts averaging 11-15 percent below 1990 levels by 2020. Poor nations want cuts of at least 40 percent to avert the worst of climate change.

Russia, which along with the United States was accused by environmentalists of delaying Kyoto, has alarmed activists by saying it will release more greenhouse gases in 2020 than now under any new U.N. emissions treaty.

Russian President Dmitry Medvedev in June boasted his country would reduce emissions by 10-15 percent from 1990 levels by 2020. But in reality, this means a 30 percent rise from current levels since emissions tumbled after the collapse of the Soviet Union and its smokestack industries.

"We are so angry about this and completely oppose it," Greenpeace's Chuprov said. Almost all other industrialised nations are planning deep cuts from current levels.

(Reporting by Amie Ferris-Rotman, additional reporting by Robin Paxton in Moscow)

www.reuters.com

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5. Oceans seen as new front to fight climate change

By Wendell Roelf
Reuters

October 14, 2009

CAPE TOWN (Reuters) - Preventing the destruction of marine life, from plankton to seagrasses and mangrove forests, could help offset between 3 to 7 percent of current fossil fuel emissions, a U.N. environment report said on Wednesday.

The "Blue Carbon" report found that of all the biological carbon captured in the world, slightly more than half is captured by marine-living organisms.

"Healthy oceans (are a) new key to combating climate change," said the report, which highlighted how marine organisms such as seagrasses naturally absorb greenhouse gases.

Life in seas and estuaries captured and stored up to 1,650 million tonnes of carbon dioxide every year, the equivalent of almost half of the emissions from the entire global transport system, it said.

"We already know that marine ecosystems are multi-trillion dollar assets linked to sectors such as tourism, coastal defense, fisheries and water purification services," said Achim Steiner, head of the U.N. Environment Programme.

"Now it is emerging that they are natural allies against climate change," he said, launching the report in Cape Town.

The report proposed that governments consider a "blue carbon" fund to help protect marine life.

It estimated that between 2 and 7 percent of the "blue carbon" stores were being lost every year due to factors such as pollution and clearance of mangroves for coastal development.

The proposed fund, which would be used to protect and manage coastal and marine ecosystems, could eventually allow the future use of carbon credits similar to that proposed for tropical forests in U.N. climate negotiations.

Steiner did not provide a target figure for the fund, which he said was unlikely to be adopted at a December 7-18 U.N. meeting in Copenhagen to agree a pact to fight global warming.

(Editing by Angus MacSwan)

www.reuters.com

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6. Suzuki wins 'alternative Nobel'

By Wojciech Moskwa

Reuters

October 2, 2009

Environmentalist David Suzuki has received a prestigious award known as the "alternative Nobel" for his work to raise awareness about climate change.

Suzuki, 73, received the Right Livelihood Award, along with three other activists.

The awards were established in 1980 by Swedish-German philanthropist Jakob von Uexkull to recognize work that he felt was ignored by the Nobel Prizes.

The awards, which were announced in Stockholm on Tuesday, will be presented in a ceremony at the Swedish parliament on Dec. 4, six days before the Nobel Prizes are handed out.

Suzuki is known for his television and radio series and books about nature and the environment. He's also been harshly critical of governments for their lack of action on climate change.

The prize citation describes Suzuki as "one of the most brilliant scientists and communicators about science

of his generation," adding he has shown a "lifetime advocacy for the socially responsible use of science."

He was selected for "his massive contribution to raising awareness about the perils of climate change and building public policies to address it," the citation said.

Suzuki, who was born in Vancouver in 1936, was sent with his family to a Japanese internment camp during the Second World War, before moving east to London, Ont., to finish school. He later returned to Vancouver to teach genetics at UBC in 1963, a position he held until his retirement in 2001.

He first joined the CBC in 1970 to launch an award-winning broadcasting career that eventually made him a household name across Canada and around the world as an outspoken proponent for protecting the environment.

Suzuki's honorary award does not include a \$77,000 cash prize that the three other winners will receive from the Right Livelihood Foundation.

Protecting rain forests, health, peace

Congolese activist Rene Ngongo, 48, was honoured for his work to protect rain forests. Ngongo founded the OCEAN environment group in 1994, which exposed the impact of deforestation and monitored the plunder of minerals by warring factions during Congo's 1996-2002 civil wars. He also has worked for Greenpeace in Congo.

New Zealand peace activist Alyn Ware, 47, was recognized "for his effective and creative advocacy and initiatives over two decades to further peace education and rid the world of nuclear weapons," according to the citation.

Australian Dr. Catherine Hamlin, 85, was honoured for her work to improve women's health. Hamlin moved to Ethiopia in 1959 to work as an obstetrician and gynecologist and founded a hospital where women can seek free treatment for obstetric fistulas.

"The 2009 Right Livelihood Award recipients demonstrate concretely what has to be done in order to tackle climate change, rid the world of nuclear weapons and provide crucial medical treatment to the poor and marginalized," the foundation said in a press release.

www.cbc.ca

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7. Key New Ingredient In Climate Model Refines Global Predictions

By Jesper Hansen
RedOrbit
October 10, 2009

For the first time, climate scientists from across the country have successfully incorporated the nitrogen cycle into global simulations for climate change, questioning previous assumptions regarding carbon feedback and potentially helping to refine model forecasts about global warming.

The results of the experiment at the Department of Energy's Oak Ridge National Laboratory and at the National Center for Atmospheric Research are published in the current issue of Biogeosciences. They illustrate the complexity of climate modeling by demonstrating how natural processes still have a strong effect on the carbon cycle and climate simulations. In this case, scientists found that the rate of climate change over the next century could be higher than previously anticipated when the requirement of plant nutrients are included in the climate model.

ORNL's Peter Thornton, lead author of the paper, describes the inclusion of these processes as a necessary step to improve the accuracy of climate change assessments.

"We've shown that if all of the global modeling groups were to include some kind of nutrient dynamics, the

range of model predictions would shrink because of the constraining effects of the carbon nutrient limitations, even though it's a more complex model."

To date, climate models ignored the nutrient requirements for new vegetation growth, assuming that all plants on earth had access to as much "plant food" as they needed. But by taking the natural demand for nutrients into account, the authors have shown that the stimulation of plant growth over the coming century may be two to three times smaller than previously predicted. Since less growth implies less CO₂ absorbed by vegetation, the CO₂ concentrations in the atmosphere are expected to increase.

However, this reduction in growth is partially offset by another effect on the nitrogen cycle: an increase in the availability of nutrients resulting from an accelerated rate of decomposition - the rotting of dead plants and other organic matter - that occurs with a rise in temperature.

Combining these two effects, the authors discovered that the increased availability of nutrients from more rapid decomposition did not counterbalance the reduced level of plant growth calculated by natural nutrient limitations; therefore less new growth and higher atmospheric CO₂ concentrations are expected.

The study's author list, which consists of scientists from eight different institutions around the U.S. including ORNL, the National Center for Atmospheric Research, the National Oceanic and Atmospheric Administration Earth System Research Laboratory, and several research universities, exemplifies the broad expertise required to engage in the multidisciplinary field that is global climate modeling.

"In order to do these experiments in the climate system model, expertise is needed in the nitrogen cycle, but there is also a need for climate modeling expertise, the ocean has to be involved properly, the atmospheric chemistry . . . and then there are a lot of observations that have been used to parameterize the model," said Thornton, who works in ORNL's Environmental Sciences Division.

"The biggest challenge has been bridging this multidisciplinary gap and demonstrating to the very broad range of climate scientists who range everywhere from cloud dynamicists to deep ocean circulation specialists that [incorporating the nitrogen cycle] is a worthwhile and useful approach."

The ability to handle the increase in complexities of these models was facilitated by the capabilities of ORNL's Leadership Computing Facility, which currently houses the world's fastest supercomputer for civilian research. Jim Hack, director of the National Center for Computational Sciences, emphasizes that Thornton and his team were not limited by computational resources in the construction of his model. "It's one of the laboratory competencies, so we want to make sure we enable leadership science," he said.

This breakthrough is one more step toward a more realistic prediction for the future of the earth's climate. Nevertheless, potentially significant processes and dynamics are still missing from the simulations. Thornton also stresses the importance of long-term observation so scientists can better understand and model these processes.

A 15-year study of the role nitrogen plays in plant nutrition at Harvard Forest was an important observational source used to test their mathematical representation of the nitrogen cycle--a long experiment by any standards, but still an experiment that, according to Thornton, could improve the accuracy of the simulation if conducted even longer.

Other shortcomings of climate simulations include the disregard of changing vegetation patterns due to human land use and potential shifts in types of vegetation that might occur under a changing climate, although both topics are the focus of ongoing studies.

The research was funded by the DOE Office of Science. Additional resources were contributed by NASA Earth Science Enterprise, Terrestrial Ecology Program; National Center for Atmospheric Research through the NCAR Community Climate System Modeling program and the NCAR Biogeosciences program.

UT-Battelle manages Oak Ridge National Laboratory for the Department of Energy.

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8. Buying Time: Cutting Non-CO2 Pollutants Will Slow Climate Change

By Richard Levangie
triplepundit
October 14, 2009

Climate change isn't only about carbon dioxide. So that's why, in a world that is stepping close to a steep precipice, doing more to reduce non-CO2 climate change contributors such as black carbon, tropospheric ozone, and hydrofluorocarbons (HFCs), as well as expanding bio-sequestration through biochar production, might head global warming off at the pass, according to Nobel Laureate Dr. Mario Molina and co-authors in a paper published today in the Proceedings of the National Academy of Sciences (PNAS). The authors argue that this novel perspective could transform the debate at United Nations climate change conference slated for Copenhagen in December.

"Cutting HFCs, black carbon, tropospheric ozone, and methane can buy us about 40 years before we approach the dangerous threshold of 2° Celsius warming," said co-author Professor Veerabhadran Ramanathan, a Distinguished Professor of Climate and Atmospheric Sciences at Scripps Institution of Oceanography at the University of California, San Diego.

"By targeting these short-term climate forcers, we can make a down payment on climate and provide momentum going into the December negotiations in Copenhagen," said co-author Durwood Zaelke, President of the Institute for Governance & Sustainable Development. "The Obama Administration and other key governments need to take up the fast-action climate agenda before it is too late."

Dr. Molina suggests that HFCs, a potent greenhouse gas that was developed to replace ozone-depleting CFCs, are already covered by existing treaties and the Montreal Protocol, and those treaties could be leveraged to cut HFC emissions dramatically.

Similarly, black carbon, otherwise known as soot, is a huge pollution problem in the developing world that has been directly responsible for almost 50 percent of the warming we've seen in the Arctic. The good news is it can be reduced quickly by providing relatively inexpensive solar cookers and diesel particulate filters to people living in the world's poorest regions. Even better, such a step would not only slow global warming, it will also greatly improve air quality and, by extension, the health of people living in cities and countries where poverty and pollution is rife.

The study's authors also support serious investment in biochar to turn back the hands on the climate clock. Biochar is a fine-grained charcoal product - produced by burning biomass at low temperatures in low-oxygen conditions - that is plowed into soil to serve as a natural fertilizer. "The other fast-action strategies can quickly mitigate emissions," said Zaelke, "but to back away from the cliff of abrupt climate change, we need biochar."

Abstract: ['Reducing abrupt climate change risk using the Montreal Protocol and other regulatory actions to complement cuts in CO2 emissions'](http://www.pnas.org) (www.pnas.org).

www.triplepundit.com

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Northern Climate Exchange

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*The next Update from the Northern Climate Exchange will be sent out **Wednesday, October 21, 2009***