



Climate Alert

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Climate Institute Launches Major Website on the Impacts of Climate Change

On August 8 Climate Institute launched its new website with a global collection of climate change impact studies. The new site includes links to over 500 reports by leading climate scientists, major assessment groups as well as peer-reviewed studies by those skeptical of climate change's projected consequences. This site is designed to address the absence of any central location where policy-makers, researchers, and interested members of the public can turn for unbiased information about the predicted impacts of climate change. In addition to providing studies for all geographic regions of the globe, the site also categorizes studies by sector, i.e. Agriculture and Food, Human Health, Hydrological Resources and Extreme Weather, Coastal Resources, Security, and Biodiversity and Ecosystems. The site is available at <http://www.climate.org/CI/>.

The launch of the new site comes amidst news that the Competitive Enterprise Institute has sued the federal government in an effort to halt dissemination of an assessment of the likely impacts of climate change on the United States. In addition, the latest research plan of the Administration's Climate Change Science Program calls for no similar assessments and significantly plays down the potential

consequences of climate change. These two actions are occurring just when climate change is becoming a more and more undeniable stress on society and the environment, and so they provide a strong incentive for making sure that important studies from around the world are made even more easily available to provide maximum assistance to interested stakeholders.

Climate Institute Chairman William A. Nitze, stated, "The Competitive Enterprise

Institute lawsuit threatens to deny the public access to reliable information on what may be one of the greatest threats to the environment. I am proud that the Climate Institute is doing everything in its power to make sure crucial information is available on potential impacts of climate change and air pollution to us, our children and our grandchildren."

The Scientific Advisor to this effort is Dr. Michael MacCracken, an atmospheric
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Climate Institute Initiates New Online Forum for Clean Air and Public Health

Effective climate change policy should factor in the health benefits of greenhouse gas mitigation. Climate change has synergistic implications for human health. The most immediate climate related threat is respiratory illness due to pollutants such as carbon and ozone, a problem that may be exacerbated as temperatures around the globe rise. Coordinating strategies for climate and air quality improvement offers far-reaching benefits in improved respiratory and cardiopulmonary health for the most vulnerable parts of the population – the elderly, the young and asthmatics of all ages. This summer the Climate Institute unveiled a new Internet forum, the Global Forum for Clean Air and Public Health, to stimulate dialogue between climate, air pollution and public health experts. The site provides links to studies on the ancillary benefits of greenhouse gas mitigation as well as a comprehensive inventory of local air quality monitoring stations with online venues for relaying data to the public. The goals of this initiative are to:

- Inform and influence policymakers to take a multi-pollutant approach to tackling air pollution and climate change.

Mexico City and New Hampshire illustrate how coordination between public health and multi-pollutant monitoring and control can succeed. In Mexico City, in September 1999 the Climate Institute and Instituto Autonomo de Investigaciones Ecologicas convened the North American Symposium on Coordinated Strategies for Climate and Air Quality Protection for harmonizing measures for reducing criteria pollutants and greenhouse gases. During this symposium a study directed
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High Stakes For Island States In 2004 In Mauritius

A meeting next year in Mauritius of leaders from about forty small island state nations is assuming increasing importance if any credible effort is to be mounted to prepare these nations for the threat of climate change and associated sea level rise. This meeting is expected to take place in late August 2004 in this Indian Ocean island nation. It has been named informally the Barbados +10 meeting as a principal goal is to update the Barbados Programme of Action for small island developing states (SIDS) endorsed by island nations heads of government in 1994.

Small island states have tended to get short shrift from international finance agencies and bilateral aid programs despite mounting

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- Make epidemiological research and air quality data more accessible to the public;
- Bring together leading specialists around the world, identify trends in pollution and policy various parts of the globe;
- Expand monitoring and research programs in places where they are still needed;

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Chairman's Commentary

A Year to Remember: Facing the Truth about Climate Change

By William A. Nitze

Chairman, Climate Institute and President, Gemstar Group

Several recent events have underscored the vulnerability of even advanced industrial societies to climatic events. A summer heat wave in France claimed as many as fifteen thousand lives and also forced the temporary closing of several nuclear power plants. Hurricane Isabel caused billions of dollars in damage along the US Atlantic Coast and left millions without electricity for days. These events have come in a year with a seeming abundance of weather related anomalies – severe rains in many parts of Europe, blistering heat-waves in parts of South Asia, and a profusion of tornadoes over large areas of the US. No single weather event can be ascribed to greenhouse enhanced global warming, but the likelihood and frequency of such events is steadily increasing in a rapidly warming climate.



These events underscore the inadequacy of the international response to climate change. If the Russian Federation, which is now on the fence, decides to ratify the Kyoto Protocol, this treaty could come into force by mid- 2004. Yet even achieving this long-sought goal may prove to be a Pyrrhic victory. With the US and Australia refusing to ratify and the developing countries receiving a bye from binding emissions requirements, only about a third of global emissions are likely to be subject to Kyoto limitations. The utility of the Protocol is further limited by the absence of effective compliance mechanisms. A more promising and comprehensive route forward was suggested by the Renewable Energy Task Force of the G-8, which sought to focus attention on the needs of two billion people lacking access to electricity. Yet this very thoughtful report was released only two months before 9/11 and has receded from policymaker attention.

Most disturbing has been the adoption of an ostrich-like approach to climate change by the Bush Administration and many of its supporters in Congress and industry. Reasonable people can certainly differ on the efficacy of Kyoto. They can no longer question, however, the basic science of climate change. The Administration's effort to wish the problem of climate change away by obscuring or tampering with the science is therefore an inexcusable betrayal of public trust. The Bowdlerization of an EPA report on the environment to excise most references to climate change appears to have been only the beginning of the Administration's climate censorship. We have recently learned

that the Competitive Enterprise Institute and key White House officials have joined forces in an effort to remove from government websites and documents crucial information on climate change including the National Assessment report issued three years ago after extensive input from scientists and stakeholders throughout the US.

Anticipating this threat to the public's right to know, the Climate Institute several months ago initiated an effort to build the most comprehensive source of information on the Internet both on the impacts of climate change and on air quality levels worldwide. On August 8, just after the Competitive Enterprise Institute sued the government to prevent it from disseminating the National Assessment, the new compilation was available on our site, www.climate.org. This compilation is a work in progress. Working with scientists around the world and air quality specialists such as our partner SIMA in Mexico, the Climate Institute hopes to give citizens around the world a user-friendly way of understanding what is at risk from manmade air and greenhouse pollutants. There is one lobby that is much stronger than an army of conservative think tanks and fossil fuel producers: the mothers and fathers of the children who breathe polluted air and will have to live on a blighted planet.

Unfortunately many major environmental groups in the US have tended to shy away from a discussion of climate change impacts. Instead they have focused their attention on arcane details of climate change policy such as emission baselines and delineation of allowable sink credits that are unlikely to resonate with the broader public. Recently, however, there has been an encouraging groundswell at the grassroots to educate the public on both climate and climate change. A particularly welcome initiative is Climate Day in the State of Pennsylvania. In its fifth year, this effort involved many students in mid-April in discussions of climatic issues or projects involving weather or climatic observations. Activity of this sort in other states may build a broader realization among the public that our actions are shaping the future of our climate.

Today Mexico City has the most comprehensive on line information on air quality of any major city on an NGO site, www.sima.com.mx. Within the next year similar information is likely to be available from air quality monitors in other Mexican cities, enabling the once close-to-the-vest Mexican government to become a model of transparency. This model may spread quickly – the Ministry of the Environment of Pakistan has expressed interest in having a similar system in place. Making climate and air quality data readily available to the public fuses two major hurdles to effective climate protection.

First, it avoids the Alphonse-Gaston problem of who goes first. Armed with accurate information, people in Mexico City, Karachi, Beijing, Houston and Toronto will press their governments to make the changes in energy policy necessary to improve local air quality. At the same time, those changes will produce climate protection benefits that will be shared with the rest of the world. Second, a coordinated climate and air quality protection strategy addresses the challenge of intergenerational equity. Voters today – the elderly, asthmatics, and parents of vulnerable children – may move politicians to clean up fouled air; as they do, generations yet unborn will reap the benefits of a better climate in the future.

Besides building public awareness of what is at risk, a successful international climate protection effort requires models of innovative action at the national level. Already several small island states including St. Lucia, Dominica and Grenada are working to build economies based on renewable energy. Over the next several years the Climate Institute hopes to expand this effort by helping the island countries develop integrated strategies that include greenhouse mitigation, adaptation and emergency response measures. We are also encouraged

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Special Report on Climate Surprises

by Michael Ring

When considering climate change, it is perhaps natural to think of a continuous but very gradual trend occurring over many millennia – a slow warming as the planet comes out of a very cold period, or a gradual lessening of rainfall with time as a region changes from forest to desert. However, Earth's climate has often evolved in ways strikingly different from the picture of slow, methodical change, with transitions between warm and cold, wet and dry climates occurring as quickly as a matter of decades. Indeed, many of the drastic shifts in Earth's geologic history are associated with these abrupt climate changes.

Today the subject of abrupt climatic change is garnering considerable attention, as policymakers and scientists struggle with the threats posed by global warming and the need to adapt to climate change. Research supporters are taking an interest in the subject, and the possibility that abrupt "climate surprises" might be forced by greenhouse gases has attracted the attention of at least one senator on Capitol Hill.

An "abrupt climate change," for present purposes, can be considered with the definition advanced in the National Research Council report "Abrupt Climate Change: Inevitable Surprises" (2002); a change occurring "so rapidly and unexpectedly that human or natural systems have difficulty adapting to it." Such changes might include warming or cooling of several degrees, rapid shifts in precipitation patterns and storm frequencies, occurring on scales of decades or years.

The reconstruction of paleographic climate records suggests Earth's climatic history is populated with extreme climatic shifts. Even in our "recent" history, abrupt climatic changes have occurred on decadal time scales. Most notable is the "Younger Dryas" event, a period of short but strongly cold temperatures punctuating the present interglacial period. The National Research Council report notes that cooling during this event occurred in several bursts lasting only a few decades, while the warming at the end of the period was even more abrupt – Greenland ice cores suggest a warming of eight degrees Celsius in a decade, with a doubling of snow accumulation in three years' time there. While the Younger Dryas is one of the more recent and perhaps the best-studied example of abrupt climate change, it is by no means alone in the paleographic record.

What elements of the climate system might cause such extreme shifts in climate? Several aspects, including ocean currents, the cryosphere, and methane hydrates, may introduce particular sensitivities and warrant closer examination as possible causes of abrupt climate change.

Deep ocean currents are important components of the planetary meridional heat transport. Commonly known as the "thermohaline circulation," these currents are driven by the sinking of cold water in the North Atlantic Ocean. The transport of this cold water out of the North Atlantic, and return flow of warmer tropical water into the North Atlantic, results in the transport of heat from the equator to the polar region.

While the transport of heat through the thermohaline circulation is currently strong, there is reason to believe the current has not always been so vigorous, nor need it remain so. In 1961 Henry Stommel, experimenting in the laboratory with reservoirs of different temperature and salinity, found that different stable circulations could exist between the reservoirs. Stommel's laboratory work appears applicable to the real ocean – records of sediments and gas isotopes trapped in ice core bubbles suggest a shutdown of the thermohaline circulation during the Younger Dryas, the abrupt cold period described above.

Might a slowdown or shutdown of the thermohaline circulation occur again? In some climate models, a shutdown is indicated given continued global warming, although this is not a universal result. The thermohaline circulation depends on the accumulation of dense water in the North Atlantic – it is the sinking of this dense water which starts the circulation. If warming were to continue, however, increased

melting of continental and sea ice would occur. This melting of ice would freshen the water in the ocean, perhaps to the point where the density gradients that are the impetus for the thermohaline circulation are removed.

Of course, there is a great deal of uncertainty regarding these developments and no guarantee that the thermohaline circulation would indeed change. But oceanographer Wallace Broecker has suggested that deep-water formation is "the Achilles heel of the climate system," noting that while our knowledge of the process is inadequate, the potential consequences of a thermohaline circulation shutdown could be severe.

Another portion of Earth's climate system which may figure prominently in abrupt climate change is the cryosphere. The radiation budget of the planet is particularly sensitive to the amount of ice on the Earth's surface because of the ice-albedo feedback.

A portion of the solar radiation reaching Earth is reflected to space, either by clouds or by Earth's surface. The current global average albedo is 0.3, meaning 30 percent of incoming short-wave radiation is reflected to space, but the albedo varies greatly by surface. Snow and ice, depending on their surface characteristics, may have albedos as high as 0.8 – reflecting far more radiation than most land biomes or the open ocean.

Snow and ice, of course, require cold climates to form. In turn, the increase in surface albedo after their formation results in more reflection of solar radiation, introducing another cooling forcing. This additional cooling, in turn, favors the formation of more snow and ice, which further raises the average albedo. This positive feedback results in accelerating cooling and growing ice cover.

For several decades, it has been known that small perturbations to the amount of solar forcing received by a partially ice-covered planet can result in rapidly growing or melting ice sheets – Mikhail Budyko and William Sellers obtained this result using different simple models. Indeed, these ice-albedo feedbacks may have played crucial roles in previous abrupt climate changes such as in the hypothesized Snowball Earth.

While a slight decrease of radiative forcing can result in a larger temperature change because of the ice-albedo feedback, a slight increase in radiative forcing may also introduce positive feedbacks. If the current upward trend in global temperatures continues, then obviously additional ice will melt. This melting, however, replaces a high-albedo surface with a low albedo surface, introducing another warming forcing into Earth's climate system. The ice-albedo feedback may be a particularly important culprit in abrupt climate change at high latitudes if current melting trends are to continue.

The release of methane hydrates is another potential cause of abrupt climate change. Methane, like carbon dioxide, is a greenhouse gas: atmospheric methane absorbs outgoing terrestrial radiation, warming the planet. While the concentration of methane in Earth's atmosphere is much lower than that of carbon dioxide, methane is actually a more powerful greenhouse gas per molecule than carbon dioxide. Thus even comparatively small releases of methane might have large impacts of Earth's climate.

Methane hydrates are solid compounds of methane and water.

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Senator Susan Collins (R-ME) has introduced the "Abrupt Climate Change Act of 2003

While Administration and Congress Balk on Kyoto Many U.S. States Move Forward on Greenhouse Emission Efforts

For the past few years Washington has seemed out of step with most of the rest of the world on climate change; now it appears to be lagging behind many of the U.S. states. Shortly before the December 1997 Kyoto conference the U.S. Senate unanimously passed the Byrd-Hagel resolution raising objections to the still to be negotiated Kyoto Protocol because developing countries such as India and China were assured a bye in the first round of likely binding emission limits. Soon after the inception of the Bush administration the executive branch indicated and has maintained strong opposition to the Kyoto Protocol. The Kyoto Protocol is still woefully short of the two thirds U.S. Senate support needed to ratify a treaty but interest is building in the Congress for some kind of mandatory U.S. greenhouse emission limits. The most significant of these was the proposed **McCain-Lieberman Climate Stewardship Act of 2003** (S. 139), which was recently defeated 55-43 in the U.S. Senate.

The proposed legislation would have instituted an emissions cap-and-trade program for major power plants beginning in 2010. It would have established a price for carbon in utility transactions and have moved the U.S. toward emissions controls, although still short of full U.S. participation in the Kyoto Protocol. Kyoto may come into force as early as mid 2004, although without participation of the U.S. and Australia. Most of Europe did not ratify Kyoto until 2002, and at this point ratification by just one more European country – the Russian Federation – is needed for the Protocol to go into force.

Even though the U.S. probably will not be a part of this international treaty any time soon, many states have put forth plans for reducing greenhouse gas (GHG) emissions that resemble Kyoto both in terms of the time frame and scope of reductions. Significant investments in renewable energy, tax credits for energy efficient technologies, top-down CO2 controls and the establishment of carbon trading schemes are some of the trademarks or recent state activities that mirror the nascent Kyoto Protocol. Since 2001 many states have stepped into the vacuum left by executive branch and Congressional inaction in Washington. Most notably 10 northeastern states have recently taken strong actions to reduce emissions in their states and hold the federal government accountable for its failure to act sensibly to curb CO2 emissions from vehicles and power plants. Two states in particular, New York and Maine, are playing key leadership roles in addressing the climate issue.

New York

In April 2003 New York Governor George Pataki announced his interest in working together with 10 other states from Maine to Maryland “to develop a strategy that will help the region lead the nation in the effort to fight global climate change.” Pataki’s proposal entails developing a regional cap-and-trade program for carbon dioxide, which would be similar to existing national cap-and-trade programs for nitrogen dioxide and sulfur dioxide. With enough interest the regional CO2 cap-and-trade program will become operative in 2 years. After considering Pataki’s proposal for 3 months, 9 out of the 10 governors contacted voiced affirmative interest in the plan. Governor Robert Ehrlich of Maryland was the only governor to refrain from the regional initiative. Out of the 10 collaborating governors, 6 of them are Republicans: George E. Pataki (NY); Mitt Romney (MA); John Rowland (CT); Donald L. Carcieri (RI); Craig Benson (NH); and James Douglas (VT), as well as 4 Democratic governors: John Baldacci (ME); Edward G. Rendell (PA); James E. McGreevey (NJ); and Ruth Ann Minner (DE). The bold move is meant to have an impact on policy at the

state level, but it is hard to imagine that the apparent commitment and cooperation between this fair mix of Republican and Democratic governors stretching a over a large, contiguous part of the U.S. will not have some impact in Congress

New York’s commitment to reducing it’s GHG emissions is already evidenced by the \$90+ million currently being invested in clean energy projects incorporating clean coal technology, natural gas, fuel cells and renewable energy. In March 2003 the New York State Public Service Commission set the ambitious goal of making at least 25% of the electricity purchased in New York by 2013 generated from renewable energy sources. (New York State Public Service Commission)

Maine

Maine has long been a leader on the environment, especially when it comes to issues relating to air. The dialogue over climate change has been a subject for policy in Maine since at least 2000 when the Maine State Planning Office and the University of Maine at Orono produced the “State of Maine Climate Change Action Plan” outlining potential policy options for reducing greenhouse gas emissions. Exploring these options revealed that the state could save enough money through energy conservation improvements to purchase power from renewable sources thereby slashing GHG emissions with imperceptible net cost. The balance of energy conservation and renewable outlays will allow for half of all purchased power in Maine to be generated from renewable sources. Another practical option for Maine is stimulating the market for fuel-efficient, low-emission vehicles with tax incentives.

In 2001 Maine Governor Angus King signed an agreement between eastern Canadian premiers and other northeastern states to reduce GHG emissions to 1990 levels by 2010; to 10% below 1990 levels by 2020; and in the long-term make 75-85% reductions below 2001 emission levels.

In early June of this year Maine, Connecticut and Massachusetts filed suit against the EPA for its failure to regulate CO2 emissions. The attorneys general from the three states claim that CO2 poses a real enough threat to the environment and public health that it stipulates being controlled under the Clean Air Act (CAA), and the EPA is negligent for failing to enforce the law properly. If the states’ suit is successful it will result in a reinterpretation of the CAA that requires the federal government to set mandatory controls on CO2 emissions. Current federal policy on curbing CO2 emissions is based solely on voluntary reductions from industry, despite President Bush’s 2000 campaign pledge to control CO2 emissions from power plants.

Also this summer, Maine became the first U.S. state to pass a law that will reduce GHG emissions in order to help avert catastrophic climate change. The law is called “An Act To Provide Leadership in Addressing the Threat of Climate Change” and calls for Maine to create a “climate change action plan” by July 2004 to reduce in-state carbon dioxide emissions to 1990 levels by 2010, to 10% below 1990 levels by 2020, and eventually by as much as 80 percent. Maine’s 2001 agreement with eastern Canadian premiers and the work on previous climate action plans means that Maine is already well on the road to realizing these reductions.

What’s to come

New York and Maine are not alone in their efforts to cut CO2 emissions, but these two states have stimulated a dialogue that reverberates across state and even national boundaries. From Alaska to Texas and down

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Russian Ratification of Kyoto Lost in the Fog

By Sarah Ferriter *

Prospects of the Kyoto Protocol entering into force in the near future were dashed when Russian President Vladimir Putin on September 29 told over nine hundred delegates to an international conference on climate change in Moscow that, *"The Russian Government is meticulously examining this question and is studying all the difficult problems associated with it."*

Putin made clear Russia would not ratify the Kyoto Protocol this year. He also raised further doubts at a speech later in the conference by remarks suggesting that climate warming might have benefits for parts of Russia.

Up until shortly before the conference Kyoto Protocol proponents had been expecting that Russia would use the occasion of the Conference to announce its intention to ratify the Protocol thus providing the impetus to bring the Protocol into effect. During the World Summit for Sustainable Development in Johannesburg, South Africa the Prime Minister of Russia stated that his country would ratify the Protocol "in the near future."

Things can and do change dramatically in a short time, however. For example, at a conference on the subject of Russia's role in the global carbon market under Kyoto on March 27, 2003 Mukhamed Tsikanov, the Russian deputy minister of economic development and trade (the main office working on the Kyoto question) spoke of the "small chance of ratifying the Protocol this year" and of the lack of "economic advantage" ratification entails. But according to the Japanese press of June 25, Mr. Tsikanov reported to a Japanese official in Russia that, *"the Russian government has already reached agreement on the ratification and completed relevant preparations."* President Vladimir Putin himself spoke of the likelihood of Russian ratification only a few days after that. Russian industries in the energy area that might benefit from emissions trading aspects of the Protocol had become more positive toward its ratification as they saw the possibility of revenues from Western European countries buying rights to Russian emission credits.

In early August President Putin sent a document with his approval for the Protocol to the Duma so that the parliament could proceed with ratification upon the conclusion of its recess in September. The Kyoto Protocol would come into force about 90 days after Russia ratifies, which means that January 2004 would have been the earliest possible time for the Protocol to come into effect. The recent actions in Russia to establish a state-run organization for handling Kyoto related transactions, more effectively measure carbon emissions and prepare the Duma for the vote on Kyoto had indicated that there was good reason to anticipate this occurrence.

The Protocol stipulates that for it to come into effect at least 55 countries must ratify the Kyoto Protocol and those ratifying it must also include Annex I (developed) countries that collectively released 55% of Annex I GHG emissions in 1990. The world's largest contributor to global warming is the United States, but because the US refuses to be a party to the Protocol the Russian Federation is now the only country with enough carbon weight to make the Protocol internationally binding. Russia is in the fortunate position of already having one third less than its 17.4% share of 1990 GHG emissions due to the economic crash following the break up of the Soviet Union, which means that further reductions are unnecessary for Russia and the country stands to profit considerably (\$10 billion by some estimates) by selling off its excess GHG allowances to other Annex I countries that need the allowances to meet their reduction quotas under the Protocol.

So why has there been such Russian backsliding over Kyoto

ratification? One explanation offered is that the question of Kyoto arises at an inopportune time politically since State Duma elections are being held in December and some parliament officials may be afraid to rock the boat before then. Another is doubt that the sale of unused emission rights will produce the large revenues originally envisioned. With the US not bidding for these emission rights this has greatly reduced buyer demand driving likely prices down considerably. Some have speculated that Russia may seek to use its current leverage over the Kyoto Protocol's fate as a political gambit for entry into the World Trade Organization (WTO). According to Financial Times (July 15, 2003), "The delay could prove costly for Russia. The main buyers of emission allowances under Kyoto – the EU, Japan and Canada – are already developing their strategies. Some central European countries, which, like Russia, have surplus emission allowances, have already sold some to a Japanese trading house.... The market is beginning to slip away from Russia."

Russia may also be alienating itself from these countries by its stubbornness and audacity to use Kyoto as a gambit for WTO membership. An EU official stated that "there is no way the EU can agree to a common economic space with a country like Russia if there are no shared environmental standards." (Wall Street Journal, "Russia Moves Slowly Over Kyoto Protocol" July 16, 2003.

One factor that may also have caused President Putin to back away from Kyoto ratification is his relationship with President Bush who has gone to some length to treat him as head of a superpower. Putin has a range of issues he may want addressed and some may be as crucial to him as the value of emission credits. In his current posture he may sense that he has leverage to deal with both the Bush administration and the EU on a variety of trade, investment and environmental issues using Russia's make or break power over Kyoto to extract a better overall deal for Russia.

Although Russian ratification is hardly foreordained, Russia ultimately may embrace Kyoto if the EU and Japan provide some greater economic inducements including guarantees of investments in major energy projects. Taking into account the amount of waste and environmental degradation caused by oil and gas business in Siberia and other parts of the former Soviet Union, the current partnerships between certain European and Russian oil and gas companies can be viewed in a positive light because these countries should improve the efficiency and environmental friendliness of oil and gas operations in Russia while being a great boon to the economy of Russia. Even better news is the fact that the International Energy Agency (IEA) identifies Russia as the world's potential leader for renewable energy development. The IEA report states that in the 1930s Russia was the first country in the world to construct utility-scale wind turbines. Right now Germany is the world's leader with 38% of all the harnessed wind energy, but Western Russia has 37% of the world's potential wind resources, an immense potential for solar power and the richest geothermal resources in the world according to IEA. These considerations may combine to tip Russia toward ratification but not before raising considerable anxiety among many Kyoto proponents.

**A research intern with the Climate Institute from June to August 2003 whose projects included establishing the Global Forum for Clean Air and Public Health, and researching climate policy across the US and the science and politics of climate change in the Russian Federation.*

CLIMATE INSTITUTE NEWS...

Recognition for Sir Crispin

The Climate Institute's Chairman Emeritus, Sir Crispin Tickell, was the graduation speaker this June at the American University of Paris. Sir Crispin who has served on the Institute's Board since 1988 and as its Chair for 12 years, was awarded the degree, Doctor of Humane Letters, honoris causa. Sir Crispin is pictured here receiving the degree from the University's President, Gerardo della Paolera.

Joining Sir Crispin and Penelope Lady Tickell at the festivities were Climate Institute Board Member, Lee Huebner, a trustee of the University, and his wife, Berna. Following his departure in 1993 from the post of Publisher of the International Herald Tribune that he had headed for 14 years, Lee served as interim President of the American University of Paris and is now a professor at Northwestern University



Sir Crispin Receives Award

Michael McElroy and James Lee Witt Join Climate Institute Board

Professor Michael McElroy, Director of Harvard University's Center for the Environment, and James Lee Witt, internationally renowned emergency preparedness leader, have just joined the Board of Directors of the Climate Institute. Bill Nitze, Climate Institute Chairman, in announcing their elections, stated:

The Climate Institute intends to be an authoritative source of information and analysis on the risks of climate change and what practical steps can be taken to lessen these risks. We view the decision of Mike McElroy and James Lee Witt to join our Board as a milestone in the Institute's emergence as the most balanced and comprehensive source of information on climate change. Mike McElroy has been at the forefront of research on climate change and variability and its impacts, particularly for the most vulnerable regions, and of efforts to preserve the stratospheric ozone layer. During the eight years he headed FEMA, James Lee Witt transformed this agency into one of the most innovative in government. Recently elected CEO of the International Code Council, he is now also spearheading this group's efforts to build storm and flood survivability into key building and planning decisions.

Mike McElroy's preeminence in atmospheric sciences is of great value as the Institute seeks to turn www.climate.org into the most comprehensive source of information on climate impacts and urban air quality. For the past five years the Climate Institute has been working closely with small island states in helping them design strategies for anticipating and responding to climate change to climate change and sea level rise. Our efforts to date have focused mostly on assisting island states to become leaders in sustainable energy. With James Lee Witt's election to our Board we anticipate helping island states to integrate energy sustainability and emergency response strategies. Those

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countries most threatened by climate change have an opportunity to show the world how thinking and planning smarter can benefit all.

Professor McElroy is now spearheading atmospheric science and policy work at two major universities, Harvard and Columbia. He is Gilbert Butler Professor of Environmental Studies at Harvard, heads Harvard University's Center for the Environment and chairs the Interfaculty Initiative on the Environment. He served as Founding Chair of Harvard's Department of Earth and Planetary Sciences and has focused his research especially on effects of human activities on the global environment. A 1984 paper he co-authored with Professors Wofsy and Prather on potential non-linear destruction of the ozone layer helped persuade the US Environmental Protection Agency to carry out a risk assessment of chlorofluorocarbons that laid the groundwork for the negotiation of the Montreal Protocol.

While maintaining his leadership role at Harvard, Prof. McElroy serves as Chairman of the Board of the International Research Institute for Climate Prediction, a joint undertaking by Columbia University and the National Oceanic and Atmospheric Administration's Office of Global Programs.

For over a quarter century James Lee Witt has been at the forefront of disaster and crisis management. As Director of the Federal Emergency Management Agency (FEMA) from 1993-2001, he made the agency a model in state of the art management and information systems, including geographic information systems (GIS) and garnered recognition from such bodies as the Council for Excellence in Government, Harvard University's Kennedy School of Government and the National Association of Broadcasters. Before assuming the helm at FEMA, he served under Governor Clinton as head of the Arkansas Office of Emergency Management. Having started his career as head of his own construction and residential construction firm, at age 34 he was elected as County Judge for Yell County and reelected five times before assuming the leadership of Arkansas's disaster preparedness programs.

In addition to serving as President of James Lee Witt Associates, which provides innovative disaster mitigation solutions to local governments, the international community, corporations, universities, hospitals, and other nonprofit groups, Mr. Witt was recently elected as CEO of the International Code Council, a professional group that oversees formulation of building safety and design codes in the US and is fostering such work abroad as well.



Professor McElroy



James Lee Witt

Green Energy in the American South; Warming in the Canadian Arctic.

Board member John Noel reports the recent merger of the Southern Alliance For Clean Energy (SACE) with Georgians for Clean Energy. SACE now has offices in Florida, Georgia, and Tennessee and soon will have offices in North Carolina. SACE originally began working with TVA to help TVA reduce its air pollution and CO2. SACE's efforts have spurred a significant TVA power plant clean up and Green Power Program promoting wind generators, solar panels and land fill methane.

With this merger and expansion SACE is now working regionally with TVA, Georgia Power, Southern Company, and Florida Power to improve energy practices in the South. John Noel serves as President of SACE. John and his wife Melinda just returned from the Arctic Circle near Baffin Island working with the Inuits and experiencing the escalating effects of ice and tundra melt and how it is affecting the lives of these remote Arctic peoples.



Innovative Idea to Help Young Families

Jason Elliott, the youngest member of the Climate Institute's Board of Directors, attracted very favorable political interest for his proposal to expand the present 401(k) system so that participants can use a portion of their retirement accounts to save for a down payment on a home. After they buy the home, it becomes an asset held within the plan, and employees can use their monthly contributions to the 401(k) to cover part or all of their mortgage payments. Citing evidence that homeownership is crucial in upper mobility of young families, he argued, "Many families earn enough to manage their monthly expenses, but do not make enough to amass a meaningful down payment at the same time. Either they continue to rent, or else, in desperation to escape that life of instability and stagnation, they fall prey to predatory lending schemes. This proposal would allow millions of hard working Americans to make the leap from renters to homeowners, improving the lives of their families, creating wealth for their children and strengthening neighborhoods and communities."

Jason, who serves on the Board of the Hyper Car initiative of fellow Coloradoan Amory Lovins, is Chairman of the Board of Enlightened Markets. This New York-based non-profit also encourages payment of a living wage to agriculture workers. In its initial campaign Enlightened Markets highlights willingness of New York wineries to pay living wages and provide health insurance to workers. Jason also serves as Managing Director of Ranger Capital Fund and is spearheading an effort of the Wyly family to build a zero net energy family ranch in Woody Creek, Colorado near Aspen.



Jason Elliott



Leadership of IPCC Impacts Working Group.

Dr. Martin Parry, who has served on the Climate Institute's Board of Directors since 1988, was named in 2002 to serve as Co-Chair of the IPCC Working Group concerned with impacts of climate change. His Co-Chair is Dr. Osvaldo Canziane of Argentina. One of the world's leading scholars on impacts of climate change, Martin heads the Jackson Environment Institute at University of East Anglia in Norwich, England. He is also chairing an IPCC Task Group on Scenarios for Climate Impact Assessment. Martin has stepped off the Board during his service with the IPCC.



Leadership of Japan's National Institute for Environmental Studies.

Dr. Shuzo Nishioka, a Member of the Institute's Board of Directors for over 13 years, was recently chosen as Co-Director of Japan's leading environmental research institution based in Tsukuba, Japan. The long-time director of global environmental change efforts at NIES, he now has overall responsibility for overseeing all environmental research activity at the Tsukuba research center. Besides spearheading Japan's research on climate change impacts, Dr. Nishioka has for the past few years been project leader of a Climate Policy Project of the Institute for Global Environmental Strategies that is designing possible domestic and international responses. This initiative was set up by the Prime Minister to promote global environmental protection through policy-oriented research.

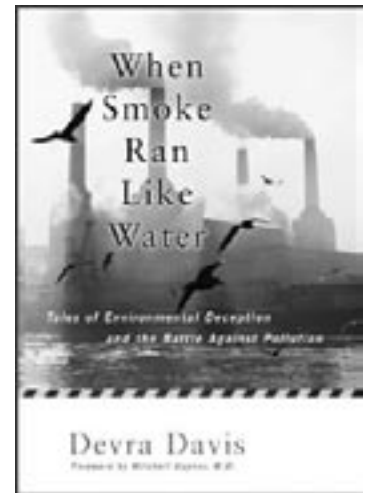


Devra Davis' Book Draws Critical Acclaim.

Climate Institute Board member and environmental health scientist Dr. Devra Davis has stirred wide interest with her book, *When Smoke Ran Like Water – Tales of Environmental Deception and the Battle Against Pollution* (Basic Books, 2002). Slated to come out in paperback in January 2004, Davis' work will soon be published in Japanese. The first book on the environment since Rachel Carson's *Silent Spring* to be a finalist in the Nonfiction category for the National Book Award, Devra's provocative book has received plaudits from diverse reviewers:

"... Davis tackles the subject of environmental pollution on two fronts, one personal and one professional. The first contains insight into her own life, starting from her roots in the metalworking town of Donora, Pa. -- where the smog from pollution killed 20 outright in October 1948 and had lasting ill effects in townspeople, some fatal, in the months and years that followed. Her vivid descriptions of deadly smog in London as recent as the mid-1950s give the reader perspective about the inherent perils of industrial pollution to the public at large. An epidemiologist by training, Davis also chronicles the growing awareness of the spread of breast cancer (and pollution as a possible cause) in the 1990s, sterility and testicular cancer in men, and the impact of pollution on climate change. Although her prose relies heavily on statistics and historical accounts of pollution, Davis's personal narrative ties the story together nicely..." Recommended reading from *Scientific American*, March 17, 2003.

"With intelligence and skill, Devra Davis, an epidemiologist, leads the reader down a path to a much deeper understanding of the major environmental issues of our time. Her book--a finalist for a National Book Award--is as fascinating and engrossing as a well-written detective novel, yet as accurate and enlightening as the best scientific literature. Davis is a visiting professor at Carnegie Mellon University and a senior adviser to the World Health Organization." Review by Bette Hileman, Senior Editor, *Chemical & Engineering News*, April 14, 2003.



CLIMATE INSTITUTE NEWS...

Private Diplomacy for the Global Environment

Advisory Board member John Ashton has recently taken leave of absence from the UK foreign service, to give himself more freedom to explore new approaches to environmental challenges. He is currently working as Director for Strategic Partnerships at LEAD International (www.lead.org), mobilizing LEAD's global network of Fellows in pursuit of practical environmental outcomes. He also remains closely engaged with the climate debate, and is an author of a paper on climate change and equity that forms part of the Pew Center's "Beyond Kyoto" initiative (www.pewclimate.org)



Institute President Speaks at Beijing Green Food Summit

John Topping, President of the Climate Institute since its founding in 1986, spoke on October 21 at a Green Food Summit in Beijing, China. Also speaking at the Summit was John Spears, President of the International Center for Sustainable Development. Spears, an architect, spoke last year to the Institute's Gordon MacDonald Dinner Seminar. He enthralled the interns by describing his groundbreaking work in Chinese villages to incorporate clean energy and resource recycling into village design. In the summer of 1991 the Climate Institute and the Chinese Academy of Sciences jointly organized in Beijing an International Symposium on Climate Change Impacts. Following the Green Food Summit, Topping met with Chinese scientists concerning collaboration in several areas including the Institute's recent initiative to ensure on line access to information on climate change impacts and air quality levels.



Dartmouth Awards Fellowship For On-Line Air Quality Work In Mexico City

Dartmouth College recently awarded a Reynolds Fellowship to *Oliver Bernstein* to spend the next year in Mexico City working with The Climate Institute's partner, SIMA, to ensure air quality data for the mega-cities of Latin America is available on-line. Bernstein, who headed Dartmouth's Environmental Conservation Organization (ECO) before graduating in June 2003, is fluent in both Spanish and Portuguese. He will work closely with Luis Roberto Acosta, SIMA's Director and winner of Mexico's most prestigious environmental award, the Aleman Prize.



Gordon MacDonald Environmental Leadership Program Draws Wide Student and Speaker Participation

Since its launch in June 2003 the MacDonald Program has drawn enthusiastic participation from students and recent graduates from Dartmouth College and several other colleges. Over twenty speakers have met with Program participants. Pulitzer Prize journalist David Shipler, Dr. Devra Davis, author of *When Smoke Ran Like Water*, Climate Institute Chairman Bill Nitze, Dean Louis Goodman of

CLIMATE INSTITUTE NEWS...

American University's School of International Service, and Bill Spencer, Director of the Washington Office on Latin America, are among the most recent speakers. Besides the Dinner Seminars, MacDonald Program Director John Topping has sought to match outstanding students with study and service opportunities abroad. This has resulted in placement of one Dartmouth student in Mexico City with SIMA for the 2003-2004 year and another with the Caribbean Environmental Health Institute in Castries, St. Lucia for the summer of 2003. Another MacDonald Program participant, Meryl Raymar, won the Chairman's Award from the Geology Department of Princeton University for her thesis on renewable energy transformation in St. Lucia's power sector. Besides Dartmouth, other colleges expressing interest in the program include Princeton, Washington College, Lewis and Clark College and Shippensburg University.



Interns Spur Major Climate Institute Advances

Since its inception in the late 1980s the Institute's intern program has involved more than a hundred interns from over a dozen nations. Over the years Climate Institute interns have made great contributions helping in the editing of a ten volume landmark study on climate change in Asia and more recently in the production of a video comparing clean energy transformation and the computer revolution. Perhaps the most striking product to date of this effort occurred in early August 2003 when the Climate Institute placed on its climate.org web site the most comprehensive compilation of information on climate change impacts and air quality available anywhere on the Internet.



Julian Dautremont-Smith

German language sites. Sarah also took the lead in developing an on line Global Forum for Clean Air and Public Health. The web work also drew on some work in the summer of 2002 by *Erica Duque*, a Dartmouth College intern and Ecuadoran national who researched Spanish language sites. Laramie Duncan, a University of Georgia honors student who served at the Institute for four months in early 2002, helped design an overhaul of the entire climate.org site.



Sarah Ferriter

Two other interns served at the Institute in the summer of 2002, *Norman Brown*, a Rutgers Law School student who worked on state actions for climate protection, and *Anand Rao*, a graduate of the Indian Institute of Technology who researched incentive mechanisms for clean energy development in island states.

CLIMATE INSTITUTE LAUNCHES MAJOR WEBSITE ON THE IMPACTS OF CLIMATE CHANGE

(Continued from Page 1)

scientist who recently retired from the University of California and from heading the coordination office for the US National Assessment. Just last month, Dr. MacCracken was elected president of the International Association of Meteorology and Atmospheric Sciences. He will chair a steering committee of leading international and American climate scientists. Dr. MacCracken noted,

"If climate change is to be addressed effectively, people in countries around the world need to know what is at risk. I am delighted that the new Climate Institute site has information on impacts of climate change for most countries of the world, and I look forward to helping develop linkages to illuminate how impacts in one region may affect other regions of the world."

The new site was prepared over the past three months by a team

of three Climate Institute research interns under the direction of John Topping, who served as Staff Director of US EPA's Office of Air and Radiation before founding the Climate Institute in 1986. The interns are: Julian Dautremont-Smith, a recent graduate of Lewis and Clark College and Truman and Fulbright scholar; Nicole Okuniek, a graduate student from Germany who did work on German language studies and sites; and Sarah Ferriter, a student at University of Southern Maine who researched climate impacts studies in parts of the former Soviet Union and air quality information worldwide.



Dr. Michael MacCracken

HIGH STAKES FOR ISLAND STATES IN 2004 MAURITIUS MEETING

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evidence that they are among the most vulnerable both to climate change and to the ongoing stress of weather related disruptions. Their dispersed nature and perceived high transaction costs have limited interest of private sector investors in investing in some promising energy opportunities. Development aid programs have tended to focus energy related assistance on the more populous nations that are large and often growing emitters of greenhouse gases.

Small island states have played a large role in building international interest in climate change. The Alliance of Small Island States (AOSIS) was instrumental in building support among developing countries for the Framework Convention on Climate Change signed by well over a hundred nations at the 1992 Rio Earth Summit. A February 1992 symposium at the UN convened by AOSIS, UNEP and the Climate Institute on implications of climate change for island nations and low lying developing countries helped shaped the language of the climate treaty.

Still, despite lip service being given by international agencies and bilateral aid programs to concerns of vulnerable island nations, however, they have in practice been given quite modest financial and technical aid in addressing climate change that may pose threats to the continued habitability of several island nations and to the wellbeing of most. Exceptions have included the CPACC program, a GEF-funded effort in collaboration with the OAS to develop climate vulnerability assessments and adaptation strategies for about a dozen Caribbean island nations and some more modestly funded efforts in the South Pacific.

A number of island nations have been eager to move toward much greater use of renewable energy both to show larger nations that they are willing to pull an oar and also to reduce conventional energy costs and currency outflows. In October 1998, diplomats from a number of small island states, including the then Chairman of AOSIS, Ambassador T. Neroni Slade of Samoa, and Foreign Minister Fathula Jameel of the Maldives, participated in a symposium on sustainable energy in islands

Following this meeting, convened by the Climate Institute and Counterpart International, St. Lucia decided to step forward with plans to transform itself toward renewable energy and several other island nations began to contemplate similar moves. This effort has evolved into a partnership, a Global Sustainable Energy Islands Initiative (GSEII) involving four NGOs – the Climate Institute, Winrock International, Energy and Security Group, and Counterpart International- the OAS and several island nations. This effort has depended largely on private funding from foundations such as the Rockefeller Brothers Fund, the United Nations Foundation and the Turner Foundation. Only one

OECD country, Denmark, had been active in supporting these efforts.

Spearheading this effort for the consortium of NGOs and international agencies has been Hon. Tom Roper, former Minister for Planning and Environment and Treasurer of Australia's second most populous state, Victoria, and a long- time member of the Climate Institute Board. Roper is no newcomer to the climate issue – in 1989 when he was environment minister he got the Victorian Cabinet to set a CO2 goal, making this coal producing state the first state on the planet to adopt such an emissions target.

SIDS AS LEADERS

To date the greatest support for the notion of island state leadership in transformation has come in the Eastern Caribbean where three island states, St. Lucia, Dominica and Grenada have committed to become Sustainable Energy Demonstration Countries and are working to implement specific measures to encourage efficiency and renewable energy.

Recently several Pacific island nations and the Maldives in the Indian Ocean have indicated growing interest in undertaking such a path. Their electricity costs tend to run even higher than in the Caribbean, often over 25 cents US per kilowatt hour, and unlike the Caribbean, a high percentage of their populace lacks any access to electricity.

This growing interest in clean energy was especially evident at the Pacific Power Association's recent conference on Renewables for Sustainability. CEOs and senior officials of Pacific island state utilities were quite receptive to the entreaties by Roper and Ambassador Enele Sopoaga, Tuvalu's Permanent Representative to the United Nations, that Pacific island states become active in leading the world toward greater use of renewable energy. Ambassador Sopoaga, Vice Chair of the Alliance of Small Island States (OASIS), seems determined to put clean energy transformation high on the AOSIS agenda. In his keynote speech to the conference Ambassador Sopoaga stated:

"The reasons why small islands are keenly interested in renewable energy therefore are simple. First, and as highlighted above, we are the most vulnerable to the impacts of climate change. We are keen to see global action on reducing greenhouse gas emissions. As such we want to do our part as well. We want to show the rest of the world that even small economies like our own can be effective users of renewable energy.

The second reason is that it makes sound economic sense. A large part of our meagre economies is spent on importing expensive fossil fuels, in many cases up to 46% of total national revenue. We are nations in the middle of oceans with generally small port facilities. This makes importing oil and gas

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HIGH STAKES FOR ISLAND STATES IN 2004 MAURITIUS MEETING

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very expensive, often far above international value. It would be clear that savings from decreases in fuel importation would contribute significantly to other areas of SIDS economies. ...

Participating in the meeting besides top officials of island state utilities and representatives of regional institutions such as SOPAC, SPREP and FORSEC was Mr. Makuto Suto, representing the E7 Group of top international electric utilities. It seemed there was genuine power sector interest in facilitating clean energy work in island states. Renewable power projects in the South Pacific are already drawing support from the EU with the French providing support for vitally needed training programs.



Ambassador Sopoaga

At the same time interest is building in the idea of moving island state energy systems toward non-carbon fuels there is also increasing support for the idea of blending clean energy, emergency preparedness and climate adaptation strategies into a holistic approach. A brainstorming session organized April 18, 2003 in Washington by the Climate Institute revealed some possible outlines of such a strategy. Participating in this meeting chaired by the Climate Institute's Chairman Bill Nitze were Bruce Potter, President of the Virgin Island – based Island Resources Foundation, Jan Vermeiren, who directs OAS's Sustainable Development Unit, Jim Titus who runs US EPA's Sea Level Rise Program, Alan Miller who directs GEF's climate change staff, Joseph Huang of the US Department of Energy and Ko Barrett of US AID.

Vermeiren pointed out that efforts are underway in several Eastern Caribbean countries to meld clean energy and emergency preparedness plans and to strengthen building codes. In St. Lucia architects have been looking at ways of designing structures to optimize energy sustainability and also withstand severe storms. Potter, whose group is a leader in preservation of wildlife and habitat, described the potential havoc climate change and sea level rise may have on wildlife in the Caribbean region. Especially adverse impacts may occur on coral and mangroves and dependent species. Titus stressed the importance of softening coastlines and controlling sediment runoff in order to enable ecosystems to survive in the face of sea level rise. Following up on a major adaptation analysis funded by GEF and organized through GEF, some Caribbean nations are beginning to develop comprehensive approaches toward adaptation. St. Lucia has already endorsed a national climate adaptation strategy and Dominica, although cash-strapped as a result of an economic downturn, has embraced an integrated planning strategy.

Some efforts are underway now to assist Pacific island nations in adapting to climate change and sea level rise. The US EPA and the Government of New Zealand are working together to help several Pacific island nations prepare for these eventualities. This is already perceived as a pressing issue. In accepting the Climate Institute's invitation to join its Board, James Lee Witt, former Director of the US Federal Emergency Management Agency (FEMA), pointed out the lasting effect of two recent typhoons in the US territory of Guam. Wiping out many hotels and slashing tourism revenues, the typhoons shriveled much of Guam's tax base. Small island nations lacking any type of claim to US Treasury revenues may be even more vulnerable.

These emerging threads should come together by the Mauritius meeting into a more comprehensive approach – what might be characterized as an Endangered Islands Campaign. Such an effort combining sustainable energy design and policy, pro-active measures

to anticipate and respond to severe storms, and intelligent climate adaptation policies might move island state concerns much more prominently onto the international environmental agenda.

CLIMATE INSTITUTE INITIATES NEW ONLINE FORUM FOR CLEAN AIR AND PUBLIC HEALTH

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succeed. In Mexico City, in September 1999 the Climate Institute and Instituto Autonomo de Investigacones Ecologicas convened the North American Symposium on Coordinated Strategies for Climate and Air Quality Protection for harmonizing measures for reducing criteria pollutants and greenhouse gases. During this symposium a study directed by Climate Institute Board member Dr. Devra Davis on effects of air pollution on children's health in mega-cities was released jointly with key Mexican officials. This symposium and the children's health report helped catalyze Mexico City's decision to incorporate carbon control considerations into its 10-year air quality plan. Likewise, in May 2002 New Hampshire became the first U.S. state to enact a law that simultaneously caps sulfur dioxide, oxides of nitrogen emissions and carbon dioxide emissions from power plants thanks in great part to work done by STAPPA/ALAPCO on harmonized strategies for climate and air quality protection. Proponents of the NH Clean Power Act project that New Hampshire can achieve significant carbon dioxide emission reductions at little added cost over expenses from required air pollution reductions by optimizing the twin objectives of climate and air quality protection.

The Climate Institute's new Global Forum for Clean Air and Public Health is an online resource for the study of air pollution and public health. This resource seeks to aid in the establishment of policies around the world that simultaneously address climate change, air pollution and related public health concerns.

GLOBAL FORUM FOR CLEAN AIR AND PUBLIC HEALTH

The Global Forum for Clean Air and Public Health is an online forum to stimulate dialogue between climate, air pollution and public health experts. The site provides links to studies on air pollution and the ancillary benefits of greenhouse gas mitigation as well as a comprehensive inventory of local air quality monitoring stations with online venues for relaying data to the public. Half of the world's population resides in urban areas where air quality regularly poses a threat to human health. An estimated 3 million



people die each year because of air pollution. In 1997 it was calculated that by reducing carbon emissions by a mere 10%, 8 million lives would be saved from premature death by 2020.



Currently Climate Institute is seeking funding for expansion and development of this initiative. The Climate Institute may be contacted by parties inter-

ested in participating with or contributing to the Global Forum. E-mail forum@climate.org

A YEAR TO REMEMBER: FACING THE TRUTH ABOUT CLIMATE CHANGE

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by the interest the Government of Pakistan has indicated in aggressively developing distributed renewable energy resources to meet the needs of many Pakistanis who today lack access to electricity.

The relatively mild weather changes that the world has experienced this year could be a precursor of more extreme and disruptive changes in the future such as shifts in ocean circulation patterns, large scale releases of methane from the tundra or the oceans, or dramatic increases in climate variability. By making more people aware of what is at risk and working with developing countries to implement clean energy strategies at acceptable cost, we may help avert those more extreme changes. The events of 2003 have highlighted our vulnerability to sharp swings in the weather. It is time for all of us to face up to the risks of climate change and to take the steps necessary to reduce those risks.

Institute Has New Chairman

William A. (Bill) Nitze, President of GEMSTAR Group and a senior environmental official in both the Reagan and Clinton administrations was named Institute Chairman at a November 8, 2002 Board meeting. Earlier in April 2001 Mr. Nitze was elected Co-Chairman of the Institute and worked with the Institute's Chairman, Sir Crispin Tickell, to provide direction for the Institute's programs to bridge the growing international chasm on climate change response policy. Sir Crispin, who served for twelve years as the Climate Institute's Chairman, remains on the Institute Board as Chairman Emeritus where he will continue to work with Bill Nitze to rebuild frayed transatlantic relationships on the climate change issue.

Mr. Nitze is an internationally renowned expert on environmental issues, and currently serves as President of the GEMSTAR Group, a company focused on bringing energy-efficient technologies to

developing economies. He has held key positions in government, non-governmental organizations and the private sector in the United States and abroad.

From 1994 to 2001, he served as Assistant Administrator for International Activities, US Environmental Protection Agency. From September 1990 to August 1994, Nitze was President of the Alliance to Save Energy, a Washington, DC, non-profit coalition of environmental, government, industry and consumer leaders dedicated to promoting investment in energy efficiency. He was Visiting Scholar from February to August 1990 at the Environmental Law Institute, Washington, DC, where he was at the forefront in developing international environmental policy.

As Deputy Assistant Secretary of State for Environment, Health and Natural Resources, from 1987 to 1990, Bill Nitze had a lead role in international negotiations on global issues such as climate change, ozone layer protection, transboundary shipments of hazardous substances, biotechnology and the conservation of tropical forests. He received the Superior Honor Award of the Department of State in 1988.

Nitze is an alumnus of Harvard College (1964), Wadham College, Oxford (1966) and Harvard Law School (1969). A resident of Washington, DC, he is a member of the State of New York and the US Supreme Court Bars.

Sir Crispin, who has served recently as a senior visiting fellow of the Harvard Center for the Environment while lecturing extensively on environmental and security issues, continues to serve as Chancellor of the University of Kent at Canterbury, Director of the Green College Oxford Centre for Environmental Policy and Understanding and Chairman of the International Council of Scientific Unions Advisory Committee on the Environment.

SPECIAL REPORT ON CLIMATE SURPRISES

(Continued from Page 3)

They may be found buried under the Arctic tundra and marine sediment. The amount of methane hydrates buried on Earth may be substantial, though estimates of the actual amount vary. The stability of hydrates depends on many factors such as pressure, temperature, and the presence of other hydrocarbons; low temperatures enhance hydrate stability.

Evidence exists that release of methane hydrates contributed to instances of abrupt climate change in the past. A slight warming at the onset of termination of glaciation, perhaps triggered by an increase in insolation, could have thinned Arctic ice, destabilized the hydrates, and resulted in a rapid release of methane gas to the atmosphere. Such a rapid release may have contributed to the end of the Younger Dryas event, and paleoclimatic evidence implicates methane hydrates as suspects for other extreme climate events as well.

There is concern that the increase in temperatures might cause a similar event in the future. Methane hydrates are buried under the Arctic tundra, and if warmer temperatures cause the hydrates to destabilize, the injection of the strong greenhouse gas into the atmosphere would rapidly warm the atmosphere.

The scenarios of future abrupt climate change, of course, are all speculative. But the given extreme consequences that could be wrought by abrupt climate change, even highly improbable scenarios must be a source of concern. Both research supporters and policymakers are paying attention to the threat.

As noted in the Wall Street Journal (July 17, 2003), Lands' End founder Gary Comer has recently donated \$6.9 million to fund 23 research groups investigating extreme climate change. Meanwhile, Senator Susan Collins (R-ME) has introduced the "Abrupt Climate Change Act of 2003," which authorizes the expenditure of \$60 million to improve paleoclimatic records and abrupt climate change modeling.

Even if abrupt climate change is a remote possibility, the difficulty human kind might face in adapting to any potential changes makes understanding these processes critical. Initiatives such as those proposed by Mr. Comer and Senator Collins should be supported and supplemented so that we may better understand these potentially dangerous wild cards in our climate system.



*Gary Comer,
Founder of Lands' End*

WHILE ADMINISTRATION AND CONGRESS BALK ON KYOTO MANY U.S. STATES MOVE FORWARD ON GREENHOUSE EMISSION EFFORTS

(Continued from Page 4)

east to Maine, many Americans are realizing that the costs of climate change may significantly exceed any costs that will be incurred by taking steps to reduce emissions now. In fact, if acted upon now, the climate question provides an opportunity to capitalize on the carbon market by conserving energy, expanding renewable energy, and capping and trading CO₂. Parties to the Kyoto Protocol may not reap any direct financial benefits from steps being taken in states such as New York and Maine to reduce GHG emissions, but at least they can be assured that their commitment doesn't come in vain as the shift toward responsible climate stewardship is coming from the ground up in the U.S. Because the U.S. is contributing so disproportionately to global warming, the solution ultimately depends upon leadership in the U.S. While Maine and New York are certainly not the only states exemplifying such leadership, they are energizing the issue and mobilizing others to do the same.

Pennsylvania Climate Day Draws Wide Interest

On April 21, 2003 hundreds of high school and college students and many others across Pennsylvania participated in a host of projects, weather and climate fairs, and public lectures on the importance of climate to Pennsylvania's resources including its forests, water resources and agriculture. These projects include observations of weather and climatic occurrences, tracking of climate trends in Pennsylvania, and design of solar ovens to make use of the sun's energy for cooking and house models to enable students to understand how architects design for the climate. Nowhere was this more evident than in Shippensburg, Pennsylvania where hundreds of Shippensburg University students participated. David Hess, former Secretary of the Pennsylvania Department of Environmental Protection, spoke there to a crowd of several hundred about environmental challenges facing Pennsylvania and John Topping, President of the Climate Institute, spoke to an Applied Meteorology and Climatology class on the effort of small island states to harness renewable energy. The school provided free showings of Twister and The Perfect Storm.

This is the fifth year that Pennsylvania has celebrated Climate Day. The brainchild of a Shippensburg University faculty member, Dr. Diane Stanitski, the authorizing legislation was introduced by State Representative Jeffrey Coy, a resident of Shippensburg. Climate Day is normally celebrated on April 20 each year, but was held a day later in 2003 as April 20 was Easter Sunday.

A climatologist and associate professor of geography and earth sciences, Dr. Stanitski also serves as Executive Director of the Pennsylvania Geographical Society. Serving these next two years on a leave of absence at NOAA where she is Associate Program Manager for the Climate Observation Program, Diane can be reached at diane.stanitski@noaa.gov by anyone wanting to set up a Climate Day in their state.



Dr. Diane Stanitski



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