Institute for Governance & Sustainable Development

Black Carbon Reduces Springtime Eurasian Snow Cover Almost as Much as CO_2

Eurasia Could Recover ¼ of Pre-Industrial to Present Snow Cover Loss by Cutting Black Carbon Emissions

Washington, D.C., April 10, 2009 – A new study "Springtime warming and reduced snow cover from carbonaceous particles" published in *Atmospheric Chemistry and Physics* this week, shows that emissions from black carbon and organic matter drive springtime melting in Eurasia nearly as much as anthropogenic CO_2. It also finds that 21 out of 22 climate models that contributed to the IPCC Fourth Assessment Report underpredicted the rapid observed warming of .64˚C since 1979.

"Our study finds that black carbon is especially effective at warming climate during springtime, when the Northern Hemisphere is highly reflective and transitioning into snow-free summer," said Marc Flanner of the National Center for Atmospheric Research in Boulder, CO and lead author of the study. "By inducing early retreat of snow cover, black carbon causes (Eurasian) land areas to absorb more sunlight and warm disproportionately." Eurasia includes the Hindu-Kush-Himalaya-Tibetan Plateau, which is the headwaters for most of the major rivers in Asia.

The short atmospheric lifetime of black carbon offers the opportunity for fast mitigation. Flanner explained, "Our model studies suggest that eliminating black carbon emissions from fossil and biofuel sources would cause Eurasian springtime snow cover to recover at least a quarter of its estimated loss from pre-industrial times to the present."

"This is yet another major study revealing the major role of black carbon in the retreat of snow packs and glaciers around the world," said Professor V. Ramanathan from the Scripps Institute of Oceanography at the University of California, San Diego, a co-author of the paper. "Fortunately, we can do something about black carbon, for we know how to reduce emissions of black carbon from combustion of fossil fuels and biomass fuels."

The publication of this study coincided with the Antarctic Treaty Consultative Meeting and the Arctic Council which commenced this week in Baltimore, Maryland. Presiding over the first joint session of the meeting, Secretary of State Hillary Clinton emphasized the importance of targeting black carbon and other non-CO_2 climate forcers to protect the Arctic.

"There are also steps we must take to protect the environment. For example, we know that short-lived carbon forcers like methane, black carbon, and tropospheric ozone contributes significantly to the warming of the Arctic," said Clinton. "And because they are short lived, they also give us an opportunity to make rapid progress if we work to limit them."

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Although policymakers are beginning to take notice of black carbon and the significant near-term climate and health benefits that would result from reducing black carbon emissions, more aggressive action will be necessary to avoid the consequences of major ice melt, such as lack of fresh water, rising sea levels, and national security concerns.

"Reducing CO_2 emissions is essential, but to save fragile regions such as the Arctic and the Hindu-Kush-Himalaya-Tibetan glaciers in Asia, we also need to take immediate action to reduce non-CO_2 forcers," said Durwood Zaelke, President of the Institute for Governance & Sustainable Development. "Targeting black carbon, methane, tropospheric ozone, as well as HFCs, gives us a package of 'fast-action' strategies that can bring critical near-term mitigation." Zaelke added, "At this point, they are the only chance we have for saving the Arctic."

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