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The Other Climate Changers: Why Black Carbon and Ozone Also Matter

Washington, D.C., August 20, 2009 – According to an essay published in the September/October issue of *Foreign Affairs*, reducing emissions of black carbon soot and ground-level ozone would quickly make a considerable dent in the climate change problem and would also contribute to public health and protect crop yields. “The Other Climate Changers: Why Black Carbon and Ozone Also Matter,” is authored by Jessica Seddon Wallack, Director of the Center for Development Finance at the Institute for Financial Management and Research, in Chennai, India and Dr. Veerabhadran Ramanathan, a scientist and Distinguished Professor of Climate and Atmospheric Sciences at [Scripps Institution of Oceanography](http://scrippscoast.ucsd.edu) at the University of California, San Diego.

“Right now the world is looking at well over a 2 degree rise in temperatures from the pre-industrial age” said Ramanathan. “To avoid the severe consequences associated with such a dramatic change, we need to look at other feasible complementary measures, in addition to reducing CO₂ emissions, that will provide near-term mitigation.”

Black carbon and ground level ozone are ideal pollutants to target to avoid passing climate tipping points: they are short-lived in the atmosphere (weeks to a few months), meaning that the benefits of reducing them could be felt almost immediately.

“Cutting CO₂ is key for the long-term battle, but even the most aggressive reductions won’t save us from abrupt climate changes that may be triggered within decades,” said Durwood Zaelke, President of the Institute for Governance & Sustainable Development. “The fact that reducing black carbon and ozone by 50 percent could offset the warming effect of up to three decades worth of CO₂ emissions makes this a critical strategy to pursue.” Sens. Tom Carper (D-DE), Jim Inhofe (R-OK), Barbara Boxer (D-CA) and John Kerry (D-MA) introduced a black carbon bill earlier this year, as did Congressmen Jay Inslee (D-WA), Peter Welch (D-VT), and Mike Honda (D-CA). A provision on black carbon is also included in the Waxman-Markey climate bill.

Black carbon is produced largely by diesel vehicles and the burning of biomass, including in cookstoves in developing countries like China and India. It contributes to 7 percent of child deaths worldwide that result from fatal respiratory infections. Black carbon is also responsible for almost 50 percent of warming in the Arctic as well as extensive snow and ice melt in the Himalayas. Available technology such as diesel particulate filters for vehicles and cleaner-

burning biomass and solar cookstoves can significantly reduce black carbon emissions.

Ground level or tropospheric ozone (different than the stratospheric ozone that blocks the sun's UV rays) is formed by "ozone precursor" gases such as carbon monoxide, nitrogen oxides, methane, and other hydrocarbons. Improving the efficiency of industrial combustion processes can reduce these gases. Besides a danger to breathe, ozone lowers crop yields. A recent study reported that ozone's damage to crop yields in 2000 resulted in an economic loss of \$14-26 billion annually.

"Tackling these two air pollutants and contributors to climate change will yield regional as well as global benefits. The health and agricultural co-benefits for the areas that do reduce emissions are especially compelling," said author Jessica Seddon Wallack. "We hope that this article will raise awareness of the opportunity and accelerate local and regional emission reduction initiatives that contribute to global efforts to mitigate climate change."

Addressing the many dispersed sources of black carbon and ozone precursors will be an implementation challenge, but the fact that there are many co-benefits of taking action may mean addressing these substances is more politically feasible than tackling other emissions.

"Political feasibility is a key factor to consider with any kind of climate mitigation measure," said James F. Hoge, Jr., Editor of *Foreign Affairs*. "The fewer parties that need to come to an agreement, the greater chance of success; with all of the co-benefits associated with reducing black carbon and ozone, it really presents an ideal situation for policymakers."

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Please see the press release from the Scripps Institution of Oceanography [here](#).