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## **Fast Action on Short-Lived Climate Warmers Is Essential to Stay Below the 2°C Copenhagen Climate Goal**

### **CO<sub>2</sub> Reductions Alone Are Not Sufficient**

Washington, DC, May 3, 2010 – The stated goal of the Copenhagen Accord—keeping temperature rise below 2°C—cannot be achieved through CO<sub>2</sub> reductions alone, according to a paper published today in the *Proceedings of the National Academy of Sciences*.

The paper, authored by Dr. Veerabhadran Ramanathan and Dr. Yanyang Xu, of the Scripps Institution of Oceanography at the University of California, San Diego, underlines the need to go beyond an exclusively carbon dioxide-based approach to climate change and start targeting other contributors such as black carbon soot, ground-level ozone, methane, and hydrofluorocarbons (HFCs).

“Without an integrated approach that combines CO<sub>2</sub> emission reductions with reductions in non-CO<sub>2</sub> climate warmers, we are certain to pass the 2°C safety limit and likely reach 4°C during this century,” said Ramanathan. “Fortunately there is still time to avert unmanageable climate changes, but we must act now to reduce the short-term climate forcers.”

CO<sub>2</sub>, in contrast, is a long-lived greenhouse gas (GHG) that can persist in the atmosphere for up to 1,000 years, so that the benefits from reductions would not be realized in the near term.

According to the paper, the current “blanket” of greenhouse gases has already trapped an amount of radiant energy that is 20 percent beyond the limit for keeping a rise in temperature to 2°C.

Another obstacle to staying below the 2°C safety limit is presented by the “unmasking” of warming presently hidden by aerosols such as sulfates, which have a cooling effect on the atmosphere. Air pollution laws that are already reducing sulfates will reduce their cooling effect and expose significant warming that is currently being masked. To prevent rapid warming due to this unmasking, it is essential to simultaneously reduce the warming aerosol, black carbon soot.

“Reducing black carbon emissions is just common sense,” said Durwood Zaelke, President of the Institute for Governance & Sustainable Development. “Black carbon is a health hazard that contributes to the deaths of millions every year; it is a potent climate forcer but short-lived, so

reductions result in fast benefits; and the technology is available.”

Particulate filters can be used to reduce black carbon emissions by 99% in diesel vehicles and cleaner burning cookstoves can replace wood and other biomass-burning cookstoves in developing countries that produce significant amounts of black carbon.

The authors also emphasize the need to maximize climate protection through the Montreal Protocol by regulating hydrofluorocarbons (HFCs), a group of potent GHGs, many with hundreds to thousands the global warming potential of CO<sub>2</sub>.

“The Montreal Protocol has a track record of getting the job done quickly, and at low cost – it’s phased out almost 100 dangerous chemicals, delaying climate change by up to 12 years,” added Zaelke. “It would be foolish not to take advantage of the expertise and experience of the Montreal Protocol to help tackle the climate problem.”

The authors note, “CFCs were regulated by the Montreal Protocol in 1987 because of their negative effects on stratospheric ozone. Had CFC-11 and CFC-12 not been regulated, their greenhouse effects . . . could have exceeded the CO<sub>2</sub> effect during this century. We just have to repeat this successful model of avoiding dangerous climate changes.”

Policymakers are beginning to take note: last week the U.S., Canada, and Mexico submitted a proposal to phase down production and use of HFCs under the Montreal Protocol, as did the Federated States of Micronesia. Formal discussions on both proposals will begin at the Montreal Protocol meeting in June, in Geneva, and conclude at the meeting of the Parties in November in Kampala.

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The Copenhagen Accord for limiting global warming: Criteria, constraints, and available avenues, Veerabhadran Ramanathan and Yangyang Xu  
*Proceedings of the National Academy of Sciences*, 2010.

*See also*, Reducing abrupt climate change risk using the Montreal Protocol and other regulatory actions to complement cuts in CO<sub>2</sub> emissions, by Mario Molina, Durwood Zaelke, K. Madhava Sarma, Stephen O. Andersen, Veerabhadran Ramanathan, and Donald Kaniaru. *Proceedings of the National Academy of Sciences*, 2009.

North American Countries Target “Super” Greenhouse Gas Through Strengthened Ozone Treaty: [http://igsd.org/documents/IGSDPRHFCs30April2010\\_001.pdf](http://igsd.org/documents/IGSDPRHFCs30April2010_001.pdf)