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V. Ramanathan* (vram@ucsd.edu), 9500 Gilman Dr, La Jolla, CA. *Greenhouse Effect, Atmospheric Brown Clouds and Climate Change: Scientific and Societal Dilemma.*

The build up of greenhouse gases (GHGs) such as Carbon Dioxide, Methane and several other GHGs, is the most vexing global environmental issue. What is less recognized, however, is a comparably major global problem dealing with air pollution. New data have revealed that, air pollution is transported across continents and ocean basins, resulting in trans-oceanic plumes of atmospheric brown clouds (ABCs) containing sub-micron size particles. ABCs intercept sunlight, cause surface dimming, cool the surface and warm the air. The surface cooling effect of ABCs may have masked as much 50% of the global warming due to GHGs. At the same time, absorption of solar radiation by soot particles intensify the atmospheric warming due to GHGs effects and accelerate the retreat of Himalayan glaciers, the major source for Asian river systems. ABCs also disrupt regional rainfall patterns and lead to drying, particularly in Africa and Asia. Given disconnected public policies on regulation of GHGs and air pollution, possibilities abound in non-linear amplification of the global warming effects. We are discovering new ways in which human activities are changing the climate with formidable ethical, societal and scientific dilemma. (Received September 20, 2007)