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THE WHITEHOUSE EFFECT: CLIMATIC EFFECTS OF ANTHROPOGENIC AEROSOLS

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Atmospheric aerosols (particles suspended in air) scatter solar radiation and also serve as nuclei of cloud droplets. Industrial activities produce aerosols in substantially greater abundance than natural aerosols, leading to enhancement of planetary albedo under cloud-free conditions and also to greater concentration of cloud droplets, resulting in brighter clouds. Both phenomena decrease the solar power absorbed by the earth-atmosphere system and are thus thought to have exerted a cooling influence on climate over the industrial period with a time signature similar to that of the anthropogenic greenhouse gases. This talk reviews these phenomena and presents estimates of the magnitude and uncertainty of the resultant radiative forcing in the context of other agents of climate change over the industrial period.