Aircraft Soot Effects on Clouds and Climate

Pacific Northwest NATIONAL LABORATORY

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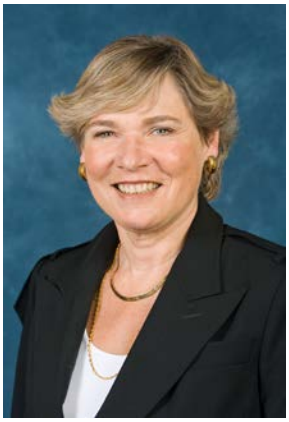
Frontiers in Global Change
Seminar Series

The CAM/IMPACT/CoCiP Coupled Climate Model: Radiative forcing by aircraft in spreading contrails and large –scale cirrus.

Presented by…



Dr. Joyce Penner

Associate Chair for Atmospheric Science
and Ralph J. Cicerone Distinguished
University Professor of Atmospheric Science
University of Michigan

Abstract:

Radiative forcing by aircraft soot in large-scale cirrus clouds has been estimated to be both positive and negative. Here, we study different model choices for the treatment of aerosols that have led to this positive and negative forcing. We also summarize results from the coupled CAM/IMPACT/CoCiP model, which is able to treat both the formation of contrails, spreading contrails (contrail cirrus), and the effects of aircraft soot on large-scale cirrus clouds. We use this model to examine the total forcing of aircraft soot within the climate system and we evaluate the effects of the coupling of the hydrological cycle within CAM with the CoCiP contrail model. The large-scale cloud effects assume that the fraction of soot particles that have been processed through contrails are good heterogeneous ice nuclei (IN).

CV for Dr. Joyce Penner

Please join us for a meet and greet opportunity with Dr. Penner after the seminar.
~Refreshments will be served~

Date: August 27

Location: EMSL Auditorium

Time: 10:00 AM

Host: Steve Ghan 372-6169 ~ POC: Kerry Lee 375-3969