

*Contribution by S.E. Schwartz, 12/18/01*

# NACIP (National Aerosol-Climate Interactions **Program**)

## Strawman Requirements

OVERALL REQUIREMENT - Demonstrated ability to:

Represent aerosol influences on radiative fluxes (direct, indirect, semi-direct) and hydrological fluxes (thermodynamics?) suitable for inclusion in climate models (present, past, future).

Accuracy must be  $\pm 0.3 \text{ W m}^{-2}$  global and annual average in aggregate (total of all fluxes).

Local instantaneous accuracy must be \_\_\_\_\_  $\text{W m}^{-2}$ .

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INTERMEDIATE REQUIREMENTS - Accuracy requirements to meet requirements of above. Demonstrated ability to:

Represent present aerosol mass concentration, composition, size distribution, morphology, and chemical size distribution, and the geographical and vertical distributions of these properties, in chemical transport models to requisite accuracy.

Represent aerosol optical properties from mass concentration, composition, size distribution, morphology, and chemical size distribution, and relative humidity (etc?).

Represent aerosol perturbation on atmospheric radiation in cloud-free air (in absence or presence of clouds) from 1-D or 3-D specification of aerosol optical properties.

Represent aerosol influences on cloud microphysical properties and hydrology, absent radiative influences, from 1-D or 3-D specification of aerosol mass concentration, composition, size distribution, morphology, and chemical size distribution.

Represent perturbation in radiative and hydrological fluxes arising from a given aerosol perturbation.

Parametrize the above processes for incorporation in climate models.