Aerosol Lifecycle Working Group

Science Focus Discussion

New Particle Formation, Aerosol Aging and Removal

- New particle formation and particle growth rate
- SOA formation (gas-phase and aqueous-phase)
- Cloud processing of aerosol (aqueous-phase chemistry, droplet coalescences, and wet removal)
- Variation of aerosol properties (size, composition, and mixing state, and distribution) during aerosol aging
- Dry deposition
- Simplified representation of aerosol properties (composition and mixing state) and processes

Nucleating Properties for Water and Ice Containing Clouds

- Role of aerosol size, composition, and mixing state on CCN spectrum.
- Aerosol properties that determine ice nuclei (IN) concentration as a function of supersaturation.
- Influence of aging on cloud nucleating properties of aerosols

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Science Focus Discussion (cont.)

Direct Radiative Impacts

- Determining aerosol optical properties from particle size, morphology, mixing state, and composition.
- Quantifying and parameterizing the dependence of aerosol optical properties on relative humidity
- Influence of aging on aerosol optical properties (e.g. black carbon particles)
- Role of absorbing aerosol on heating rate profiles, atmospheric circulation, cloud development, and precipitation