

Priorities for *In-situ* Aerosol Measurements

Parameters

- Aerosol light absorption coefficient
 - spectral, including UV, vis, and IR
 - as $f(\text{RH})$, and at ambient RH
- Phase function
 - or relevant integral properties (how many?)
- Ice nuclei
- Scattering vs. RH, for $\text{RH} > 90\%$
- CCN, as $f(S, D_p)$
- Size distribution
- Chemical composition
 - for determining climate forcing, vs. radiative effect

Calibration

- Number concentration
- Size and shape
- Light absorption reference method

Characterization

- Accuracy and precision
 - need well-understood error bars
- Algorithm comparisons
- Closure studies
- Facilities for method testing
 - aircraft time

Methods

- Inlets
 - shattering/splashing
 - location on airplane
 - passing efficiency
 - inletless analyzers/samplers
- Packaging
 - modular/portable “pods” for multiple a/c
- Spanning scales
 - microscale through global
 - individual cloud vs. cloud fields
- Finer spatial/temporal resolution
 - e.g., strong gradients near cloud edge