AeroCom workshop

The Goals
DATA - goals

• introduce available measurements (*also to modelers*)
  – ground (in-situ)       GAW, IMPROVE, ...
  – g.remote sensing:      AERONET, MFRSR, EARLINET ...
  – satellite (older):     TOMS, AVHRR, GOES / METEOSAT
  – satellite (newer):     MODIS, MISR, POLDER, ICESAT

• identify sites most useful to large-scale modeling
• identify measurements most useful to modelers
• set strategies / identify paths to merge data-sets
Data strategy

• focus on the year 2000
  • year of prescribed sources and year of nudged simulations

• combine strengths of data (MODIS / MISR / TOMS)
  • for later years include POLDER / ICESAT / CALIPSO / CLOUDSAT

• identify good ground-sites for model-evaluations
  • test regional representation with MODIS (+MISR) scaling

• merge ground data (at good sites) - if possible
  • extend/relate properties among ground networks
    – AERONET: vertical distribution from lidars
    – LIDAR: extend (Raman) lidar-ratios to AERONET-sites (for application to backscattering data from space)
MODEL - goals

• demonstrate (severity of) model differences
  • at intermediate steps in component modeling

• illustrate limitations to evaluate with data
  • how to reduce the freedom to modeling

• re-examine prescribed model output
  • in light of available measurements

• determine (realistics) needs for data
  • Suggest new or modified measurement strategies
MODEL strategy

• focus on the year 2000 – *if possible*
  • year of prescribed sources and year of nudged simulations

• test consistency in modeling
  • *same yr + sources* $\rightarrow$ *are mass-fields consistent?* processing
  • *are mass $\rightarrow$ aot conversions consistent?* (size- /r.hum-properties)

• evaluate model results with measurements
  • *match available data* (aot / accu-fraction / absorption / surf.concentr.)
  • *conduct regional (global data) and multi-location comparisons*
  • *quantify model-performance*

• provide a fast / efficient website for feedback
  • *quick turnaround and access to measurement data-sets*
Expansion

• aerosol and clouds
  – aerosol type
  – cloud changes (cover? aot? microphysics? lifetime?)

• aerosol and chemistry
  – aerosol composition (hydrophobic? mixing-reactions?)
  – trace gas properties (concentrations, reaction rates)

• aerosol and precipitation

• clues from observations (at different scales) ?
  – statistical analysis of satellite/ground data
  – consistent with model simulations ?