

Biomass Burning Breakout Session

Preliminary findings

- 1) Substantial regional background of BB and BC aerosol in FT (esp. 2-6 km)
Evidence in BC, BB, organic profiles, lidar
Acetonitrile vertical profile does not follow convectively lofted tracers
Suggests mid-level injection of BB smoke
- 2) BB mixed with dust (evident from in situ and lidar)
- 3) Mercury in BB plumes?
- 4) Entrainment and convective transport of smoke on June 22nd
- 5) Size dependent wet removal in the UT
- 6) Aging of BB particles
Evidence for restructuring of soot when humidified ($GF < 1$)
O/C ratio of AMS suggests rapid aging
PALMS sulfate, ammonium fraction increases with tracer oxidation
Single-scatter albedo increase with age

Gaps (opportunities) in science analysis

Sampling issues in clouds

More complete trajectory analysis (Flexpart forecasts in archive?)

Identifying plumes--how to define objectively

Matching lidar ratios to microphysical/chemical properties

Combining in situ obs. with satellite and radar products and modeling efforts

- a) detecting location of plumes. Can we see smoke detraining from TStorms?
- b) optical properties (MODIS/MISR)
- c) combining in situ obs with satellite folks to improve satellite data
- d) linking with cloud-resolving models, cloud microphysics
- e) linking with chemical transport models, assimilation (RAQMS, etc.)

Potential papers

Crumeyrolle--22 June: BB characteristics, entrainment, transport in TStorm, (aging?), impact on ice water content (higher IWC above BB entrainment and in anvil)

Brock, Barth, Dolgos--Radiative impact of BB on convection on 22 June

Sorooshian--restructuring of BB particles/effect on hygroscopicity

Lang--Pyrocumulus electrification from 3 fires--Waldo, High Park, Hewlitt Gulch--in preparation.

Campuzano-Jost--Aging of organics in BB plumes

Weinzierl--statistical description of BB properties as $f(\text{source, age, altitude})$

Weinzierl--process analysis of aging coating on BC

Schmidt--Radiative forcing spectra as $f(\text{aerosol type, surface albedo, etc.})$

Froyd--May have BB component in dust paper