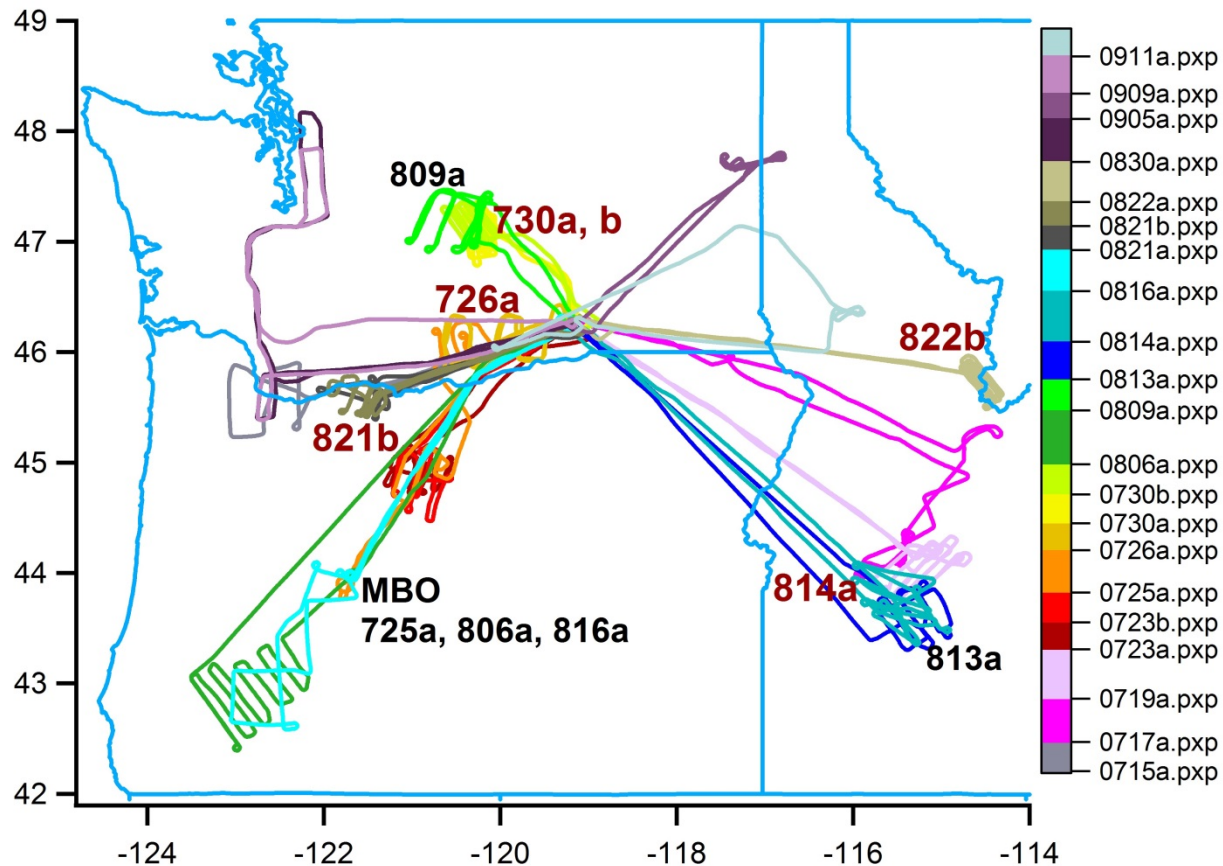
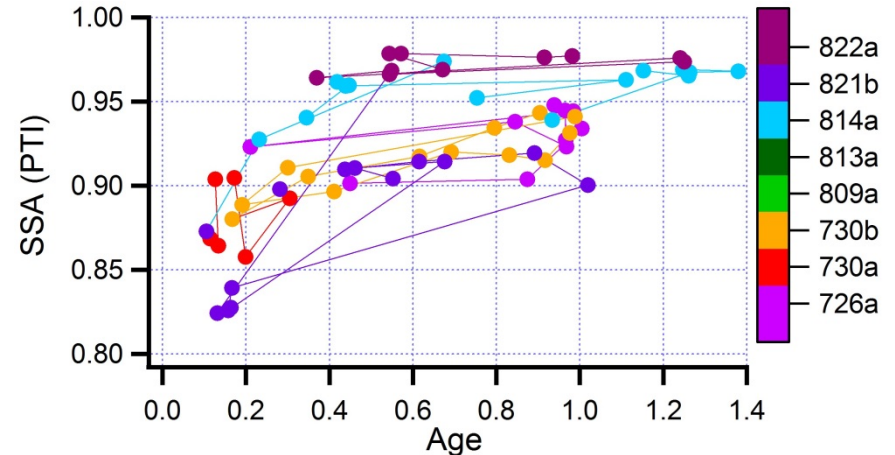
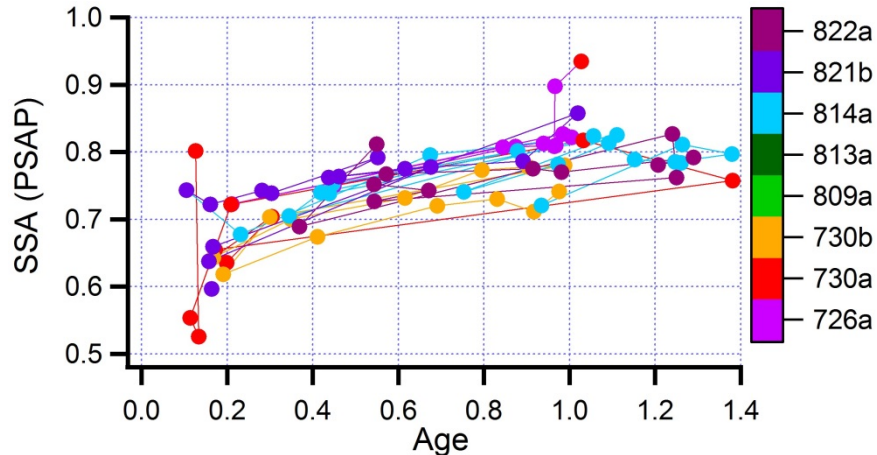


# SSA in BBOP Wildfire Plumes



6 Wildfire Plumes. Each has 1–2 sets of 5–6 transects from over fire to ~ 3 hr. downwind  
CO to account for dilution,  $-\text{Log}(\text{NO}_x/\text{NO}_y)$  as a metric for age, Nephelometer for scattering,  
and absorption from PSAP or PTI.  
All quantities have background subtracted and are averaged over plume in a single transect

## SSA at 550 nm



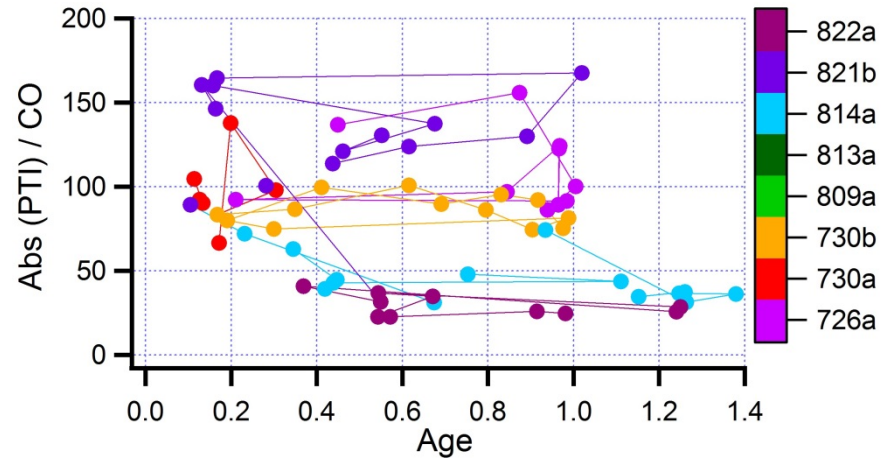
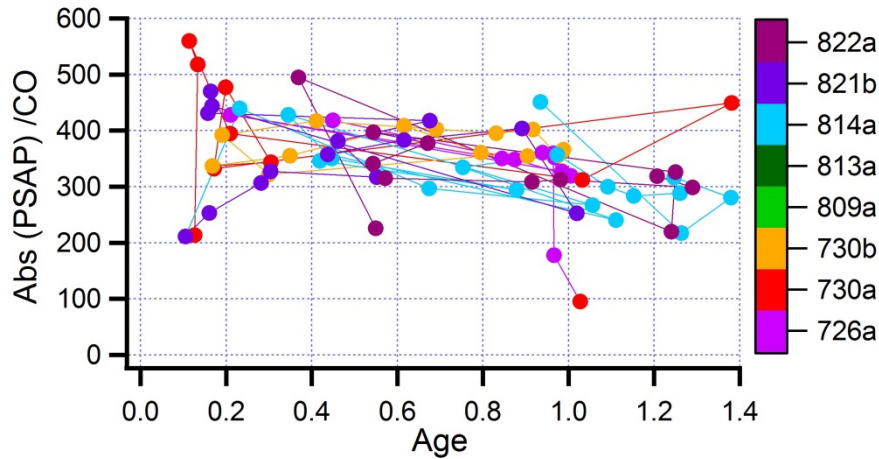
SSA from Nephelometer and either PSAP or PTI increases with downwind distance

PSAP gives a lower SSA in line with magnitude of known artifacts

SSA is an intensive quantity and gives no hint of conditions.

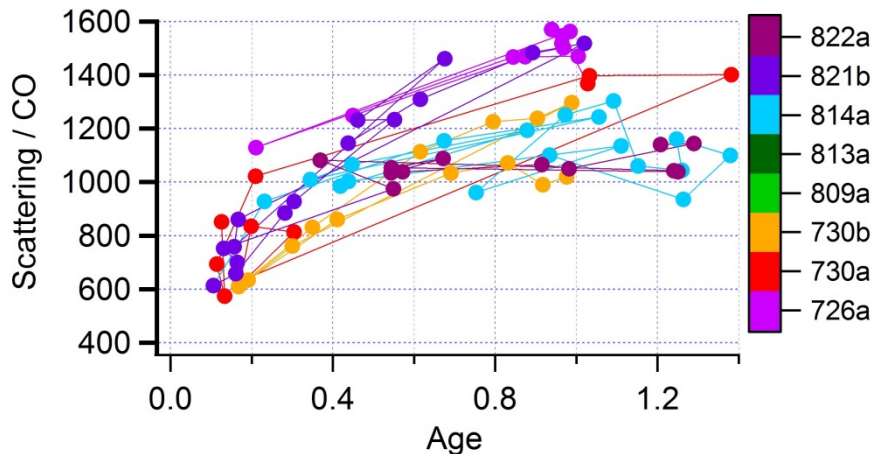
The most polluted data were on 821b. Aerosol concentration  $> 12,000 \mu\text{g}/\text{m}^3$ ;  
Scattering  $\sim 16,000 \text{ Mm}^{-1}$ ; CO = 16 ppm; Absorption = 7000 (3000)  $\text{Mm}^{-1}$ ;  
 $\text{O}_3 = 180 \text{ ppb}$ ;  $\text{O}_x (\text{O}_3 + \text{NO}_2) = 335 \text{ ppb}$ .

# Light Absorption and Scattering



PSAP decreases with downwind distance, possibly because downwind points have lower concentration and less of artifact absorption.

PTI/CO varies from flight to flight (no reason not to).  
It is more or less independent of age



SSA increases with downwind distance because scattering increases.

This appears to be due to particle size growth not due to SOA.