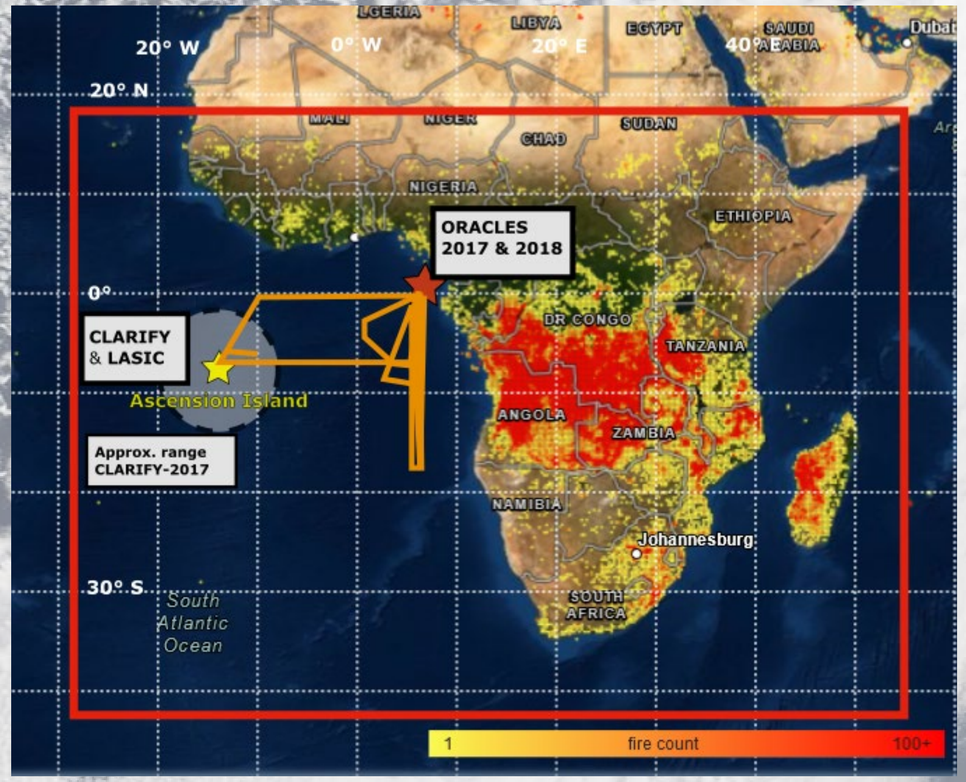
Biomass-burning smoke—number, composition, and aging



Models being evaluated:

- E3SMv2 (100km)
- CESMv2.2 (100km, 25km Africa)
- WRF-Chem-CAM5 (v3.4 branch, 36km)

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UCLA

DEPARTMENT OF ENERGY · UNITED STATES OF AMERICA ·

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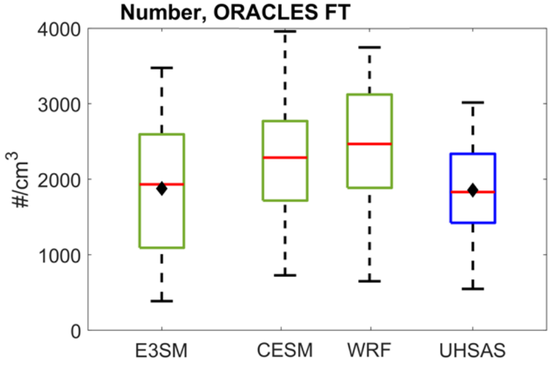
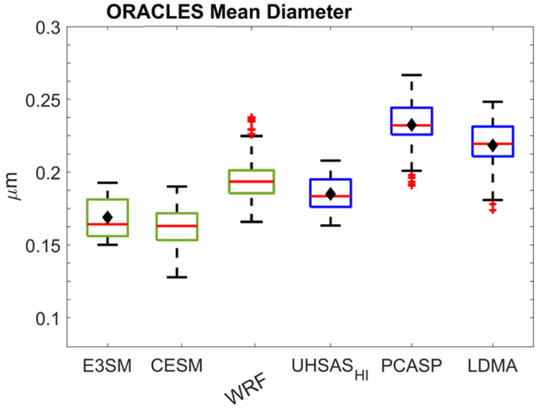
UCAR

UNIVERSITY CORPORATION FOR ATMOSPHERIC RESEARCH

Smoke properties

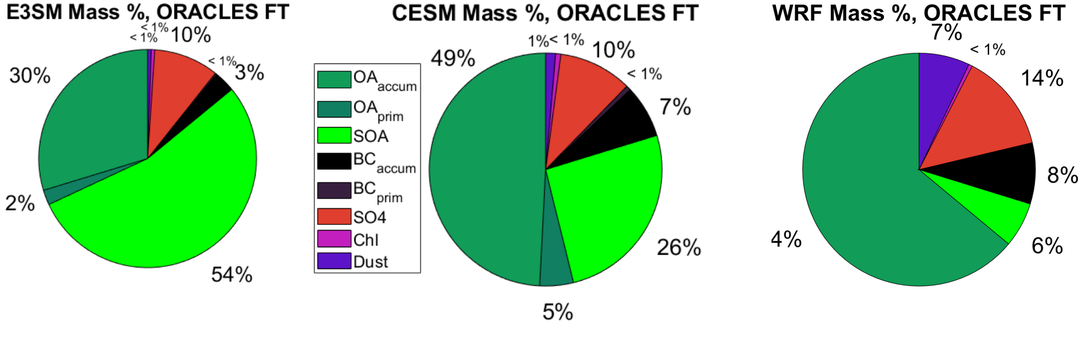




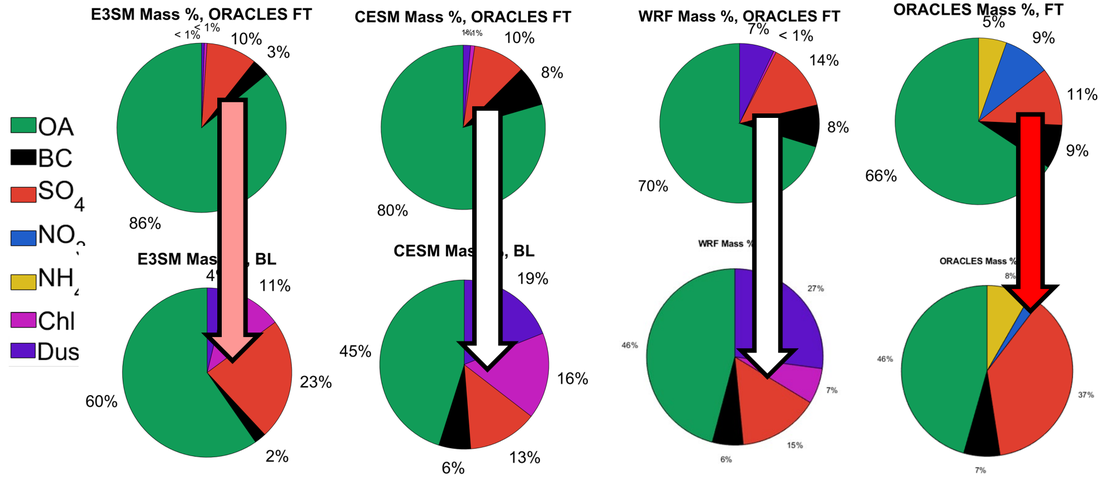
- Mean number is well in line with obs
- Accumulation-mode D_P is a little **small in E3SM and CESM**.
- WRF size was increased in line with ORACLES & BB literature, improved

FT smoke composition

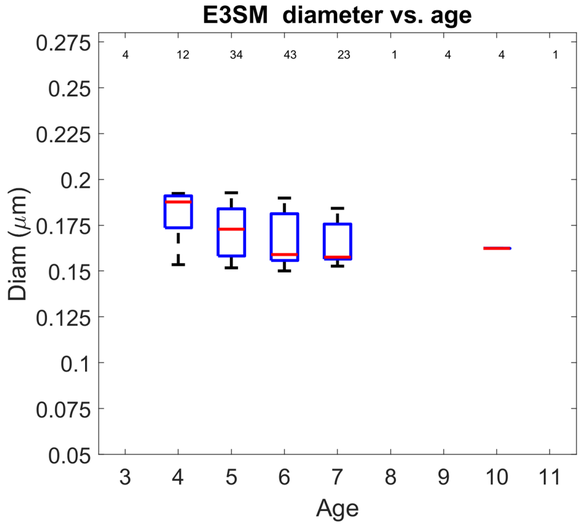
- E3SMv2 – simple yield-based SOA, MAM4
- CESMv2 – full VBS, MAM4
- WRF-Chem – simplified SOA, MAM3



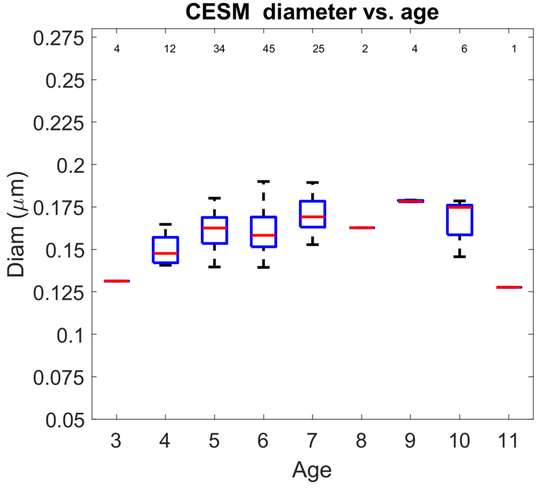
FT? BL composition change



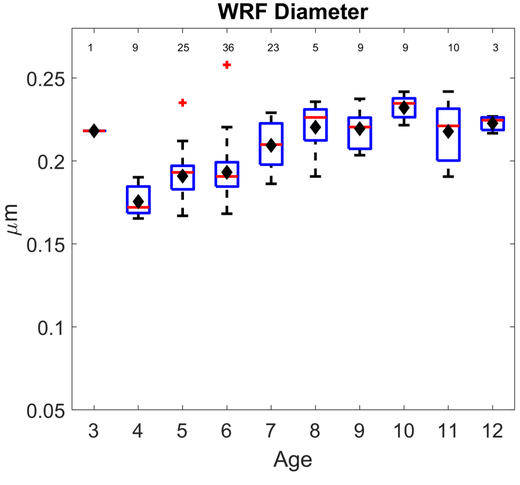
Aging: diameter



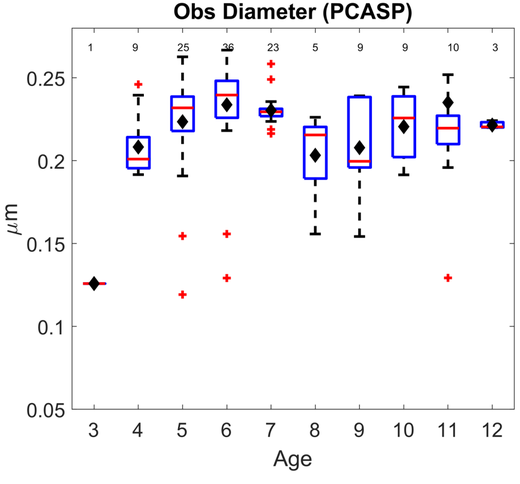
E3SM - ORACLES samples



CESM - ORACLES samples



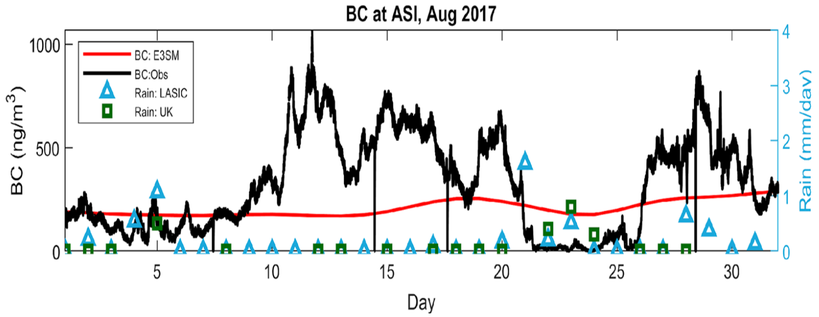
WRF - ORACLES & CLARIFY samples

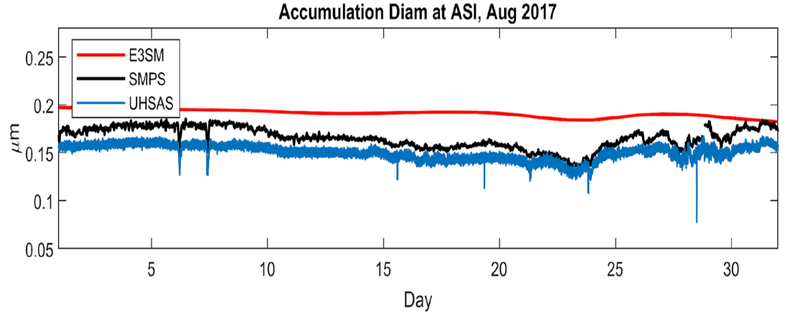


Obs - ORACLES & CLARIFY samples

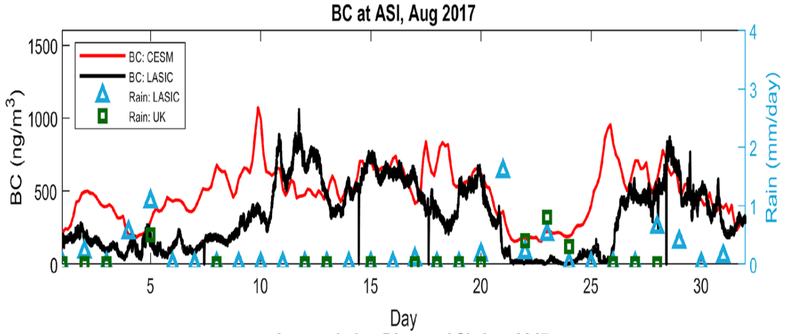
LASIC ground data

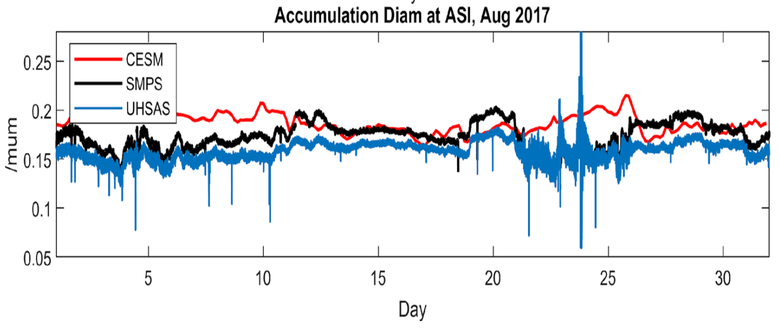
E3SM





CESM





WRF