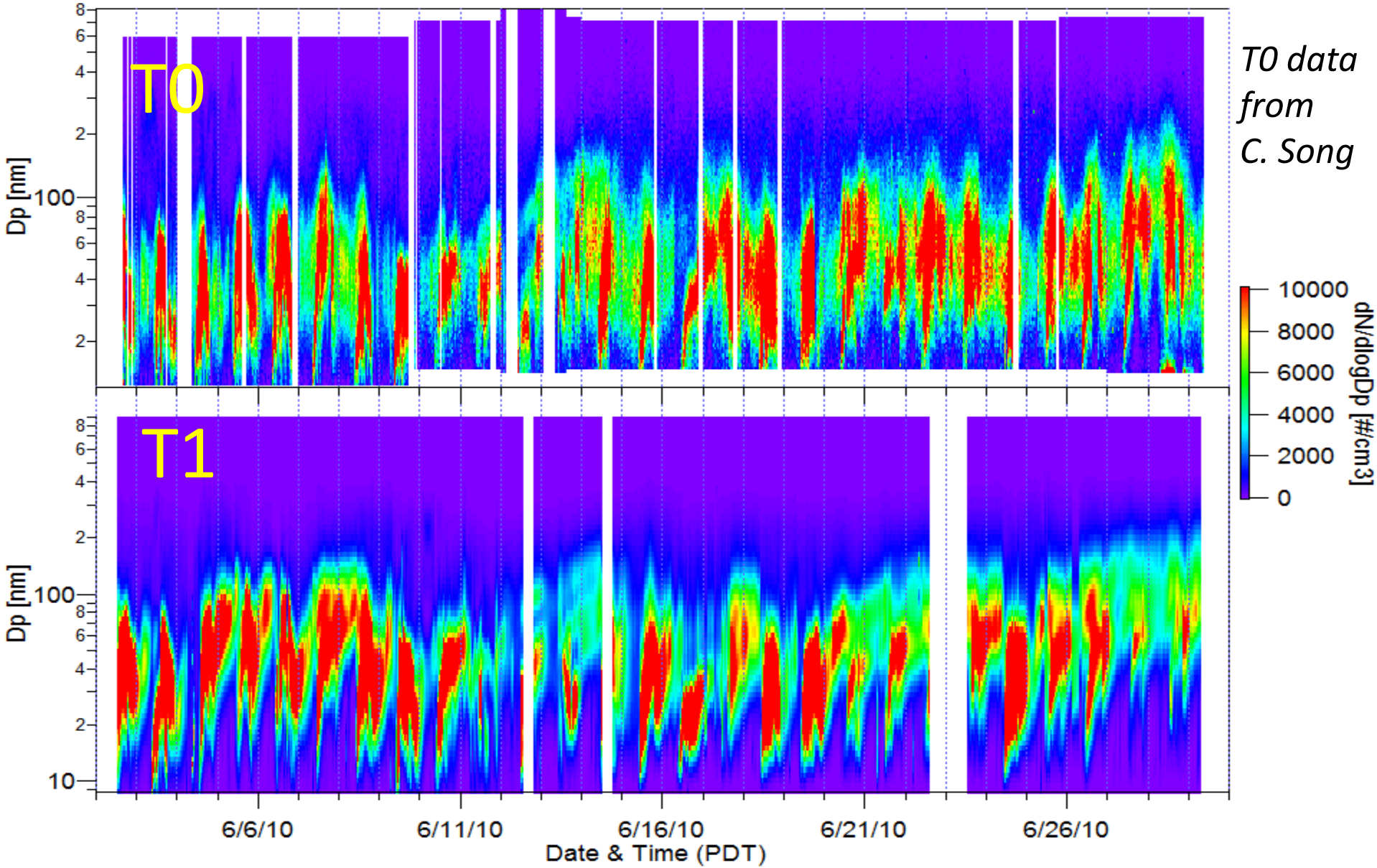
Chemistry of NPF in mixed biogenic and urban emissions - Observations from CARES

Q. Zhang, A. Setyan, et al

UC Davis

Frequent NPF & growth events

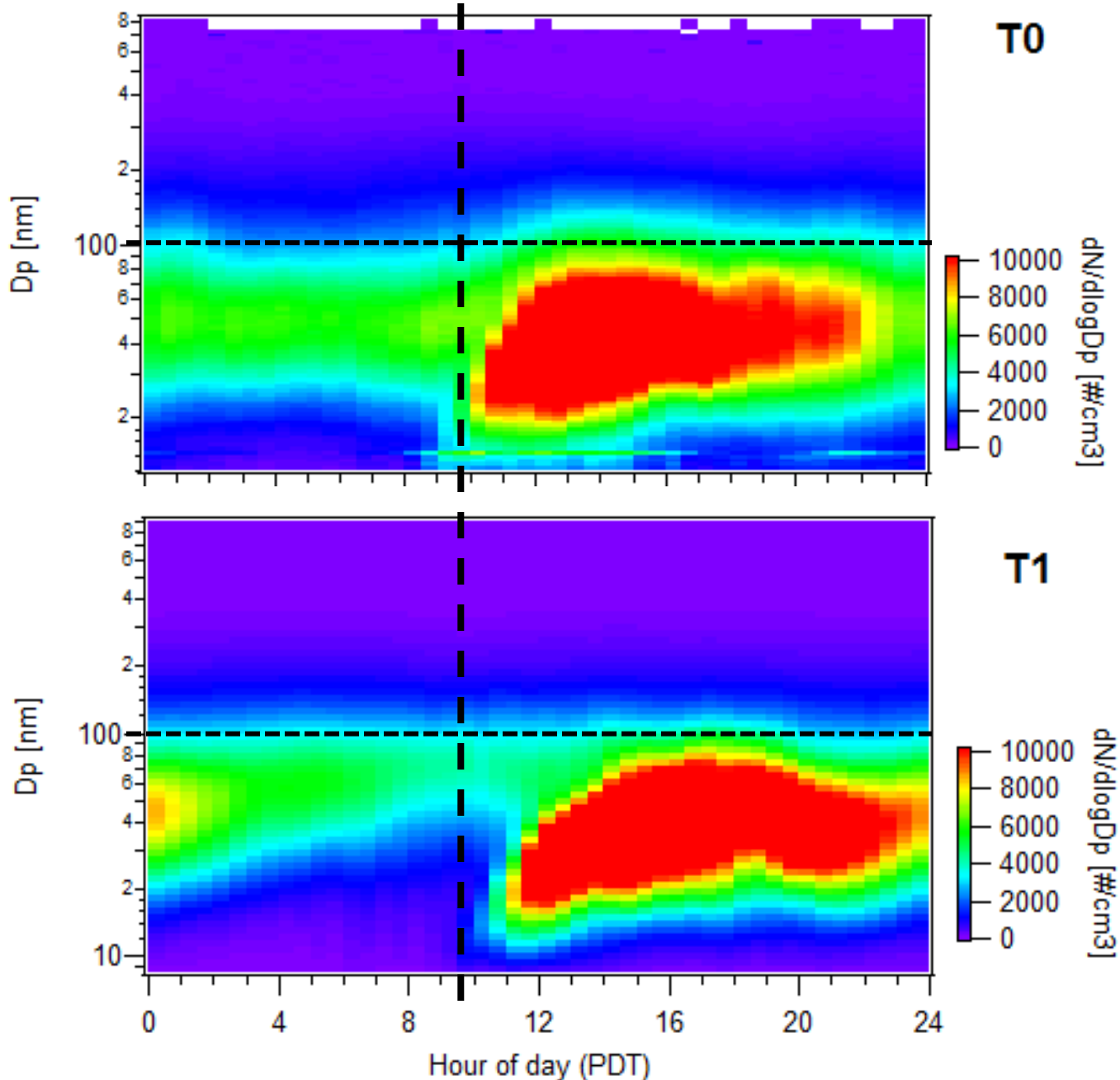
- Occurred on regional scale,



T0 data from C. Song

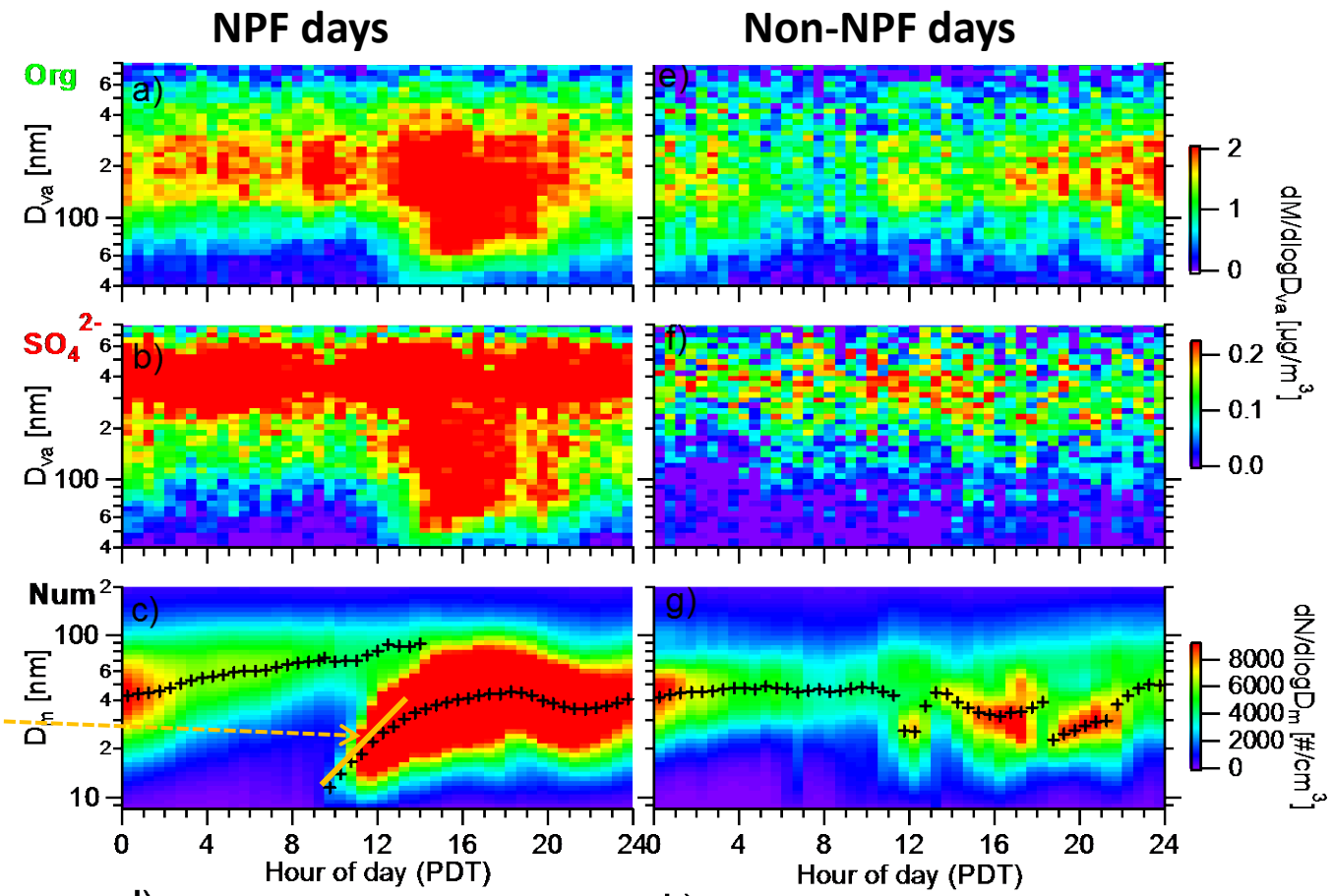
Frequent NPF & growth events

- *new particles were transported from T0 to T1*
- *PM grow during transport*



Interrogate the chemistry of NP growth

Growth driven by condensation of organics and sulfate



T1

$\Delta D_m/\Delta t$

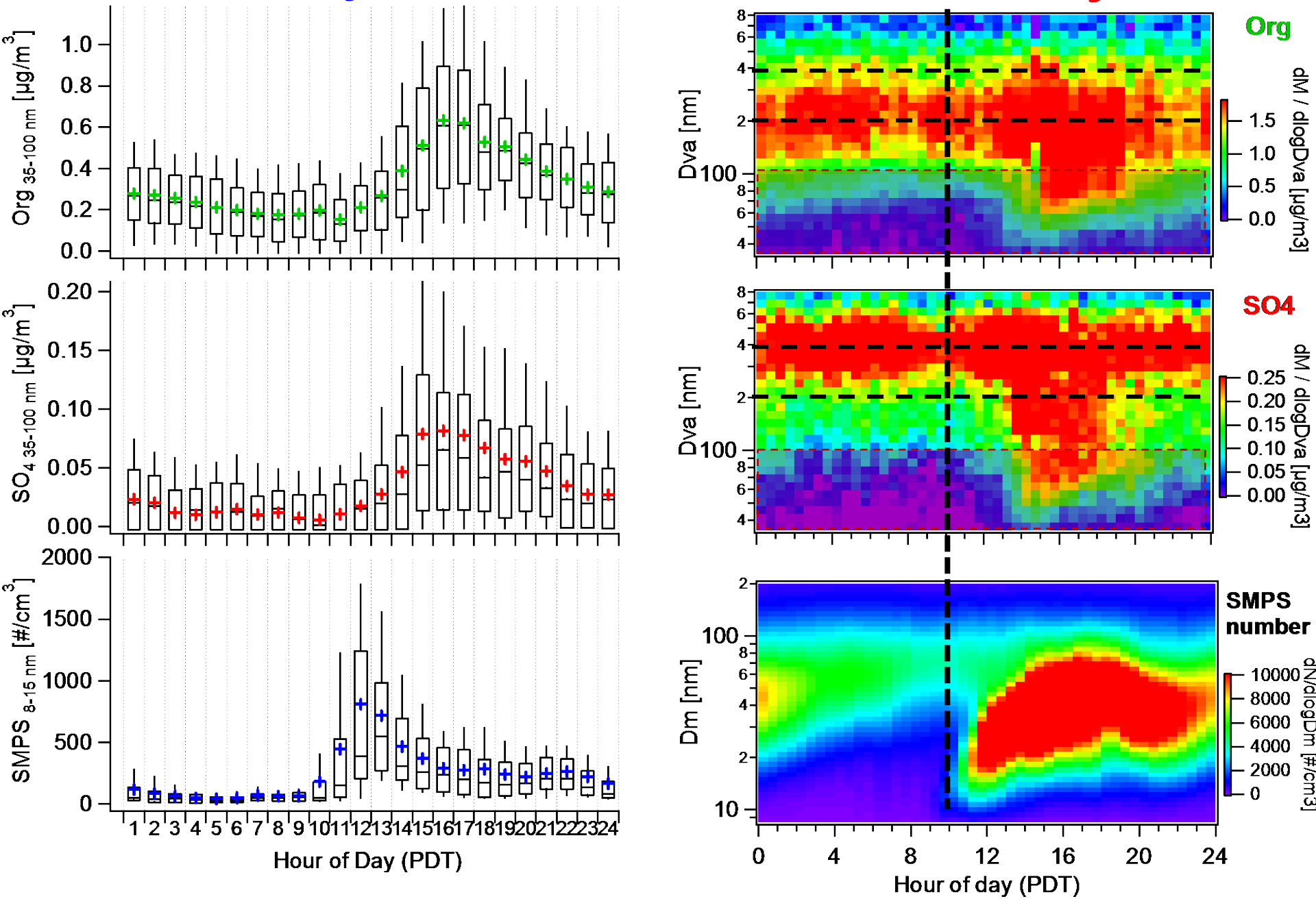
~ 5 nm / hr

T0

$\Delta D_m/\Delta t$

~ 7 nm / hr

Growth of New Particles: SOA >> Sulfate



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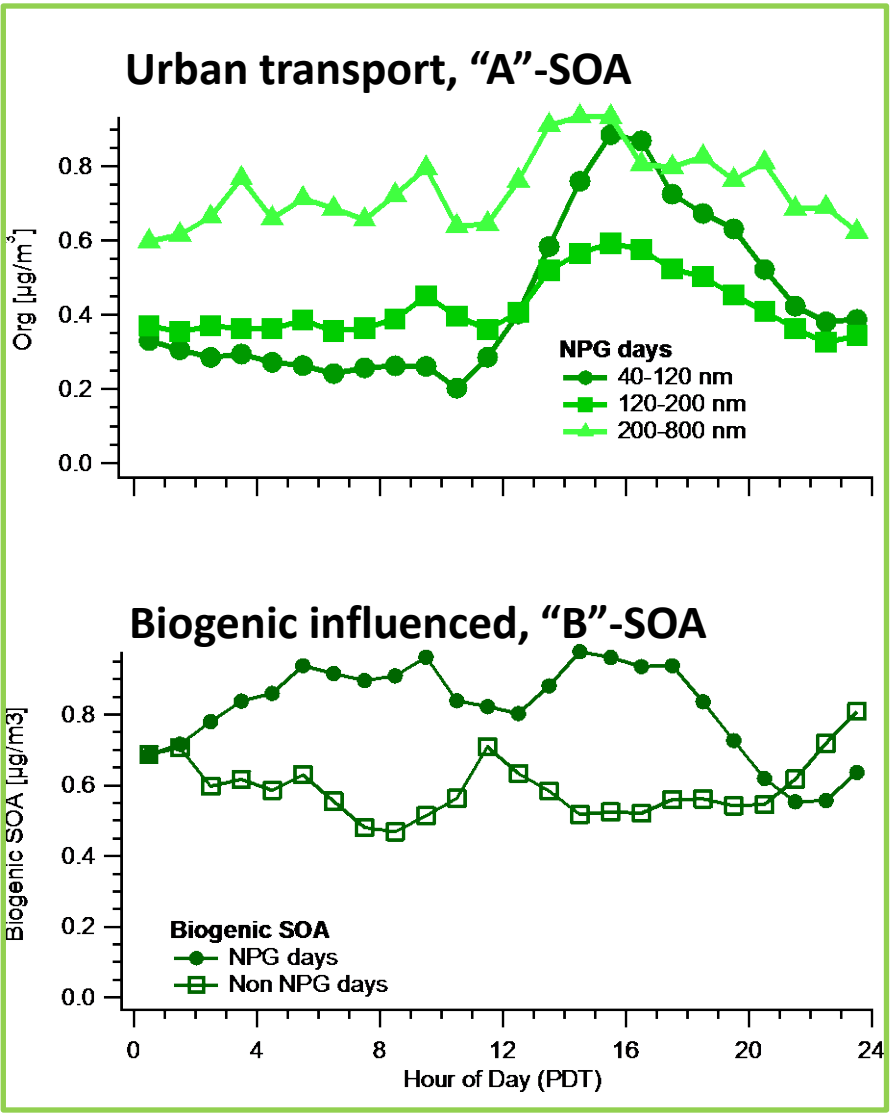
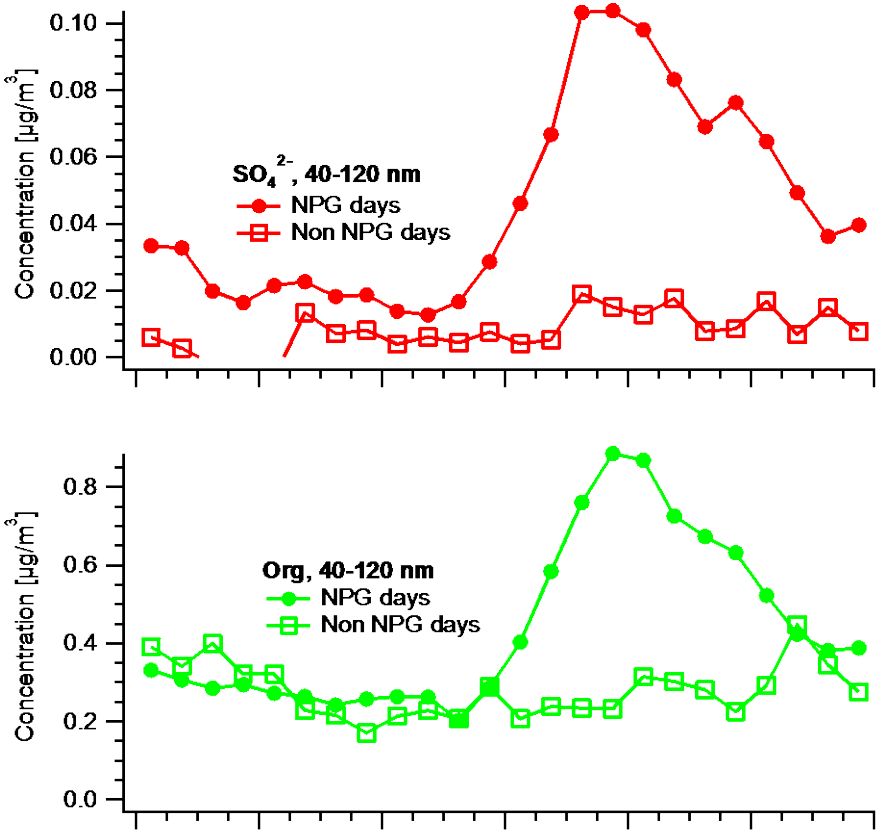
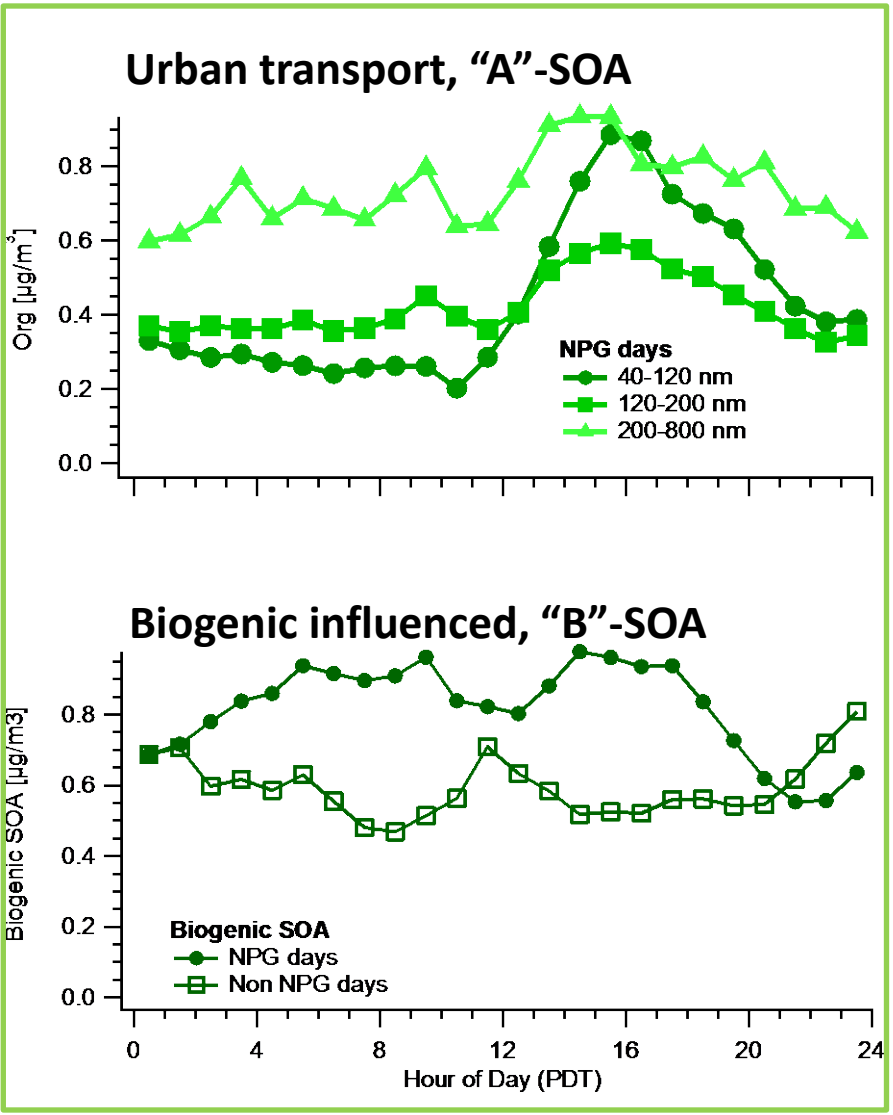
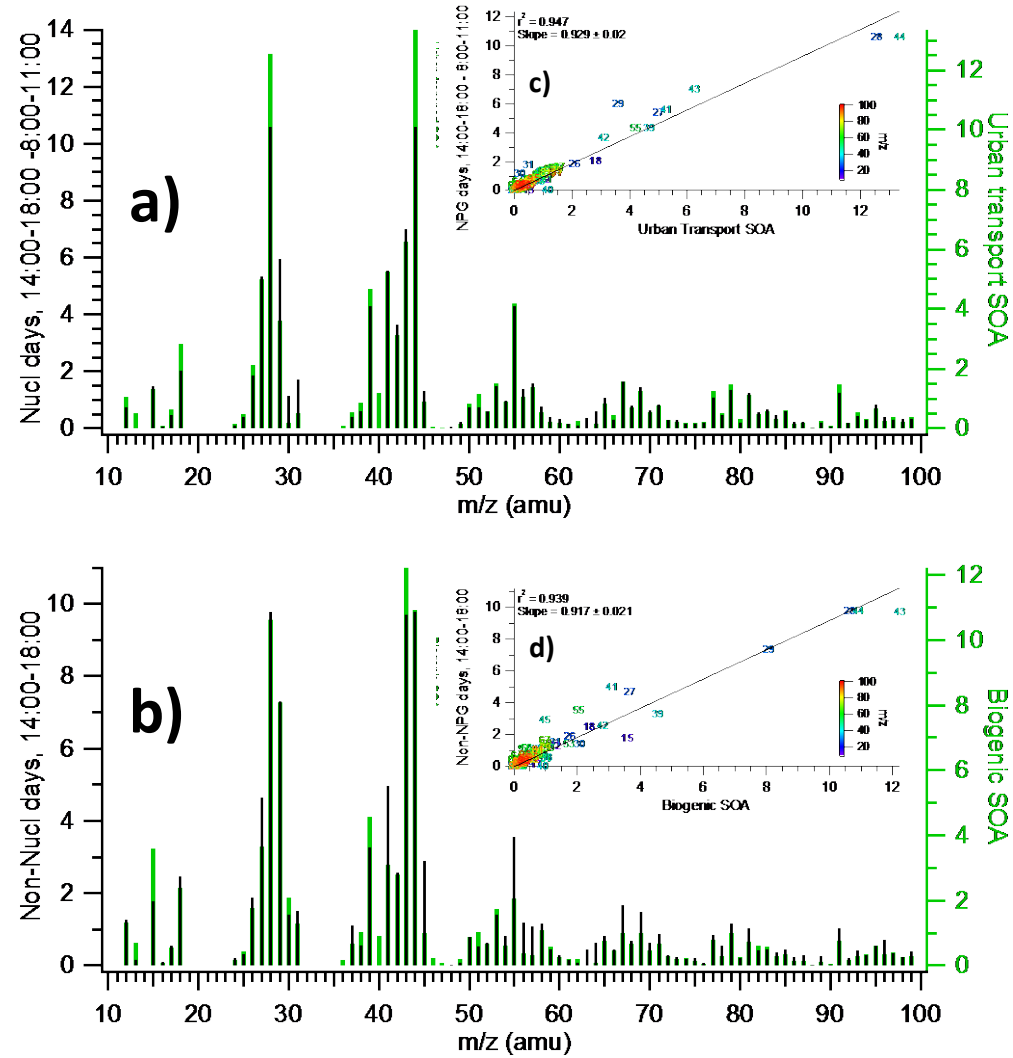
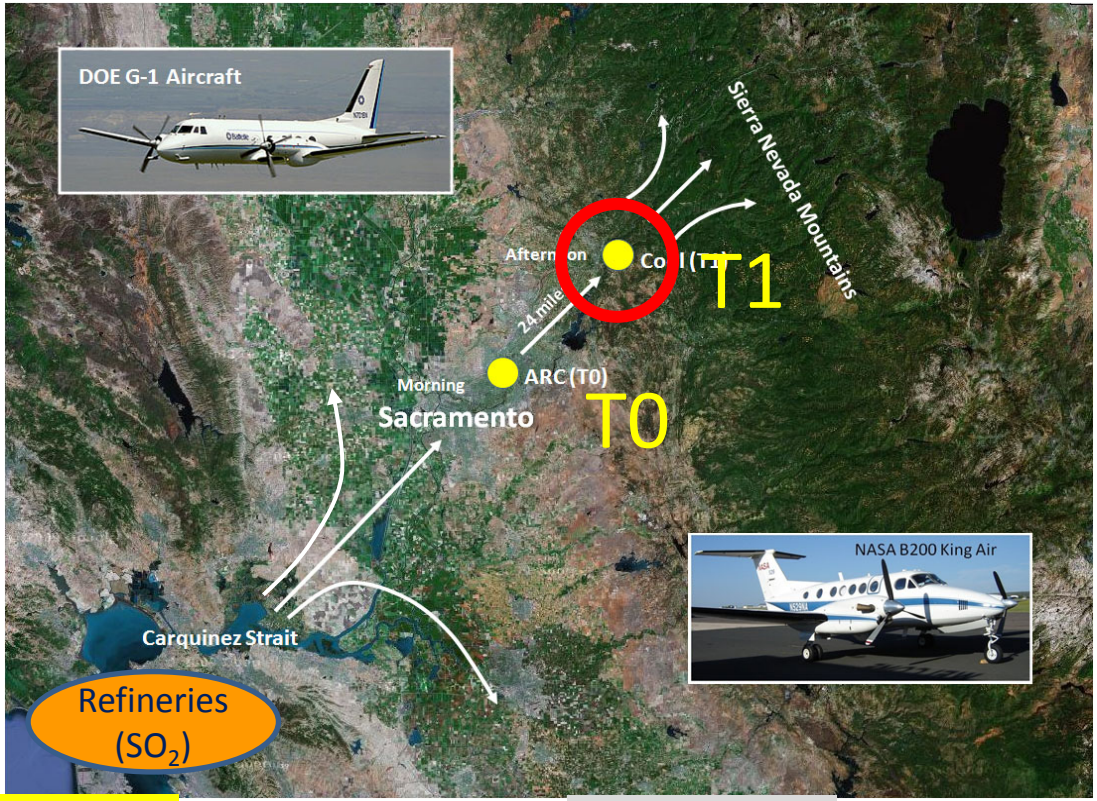




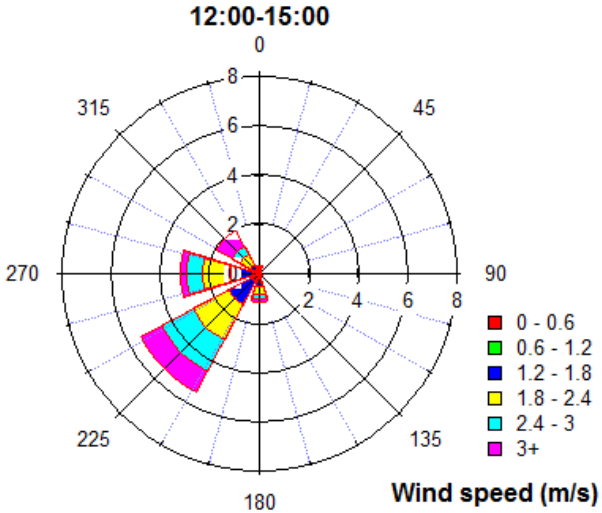
Growth of new particles was mainly driven by "A"-influenced SOA



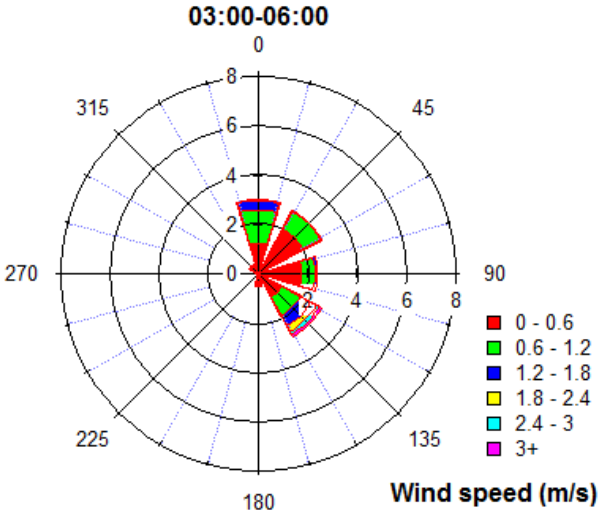


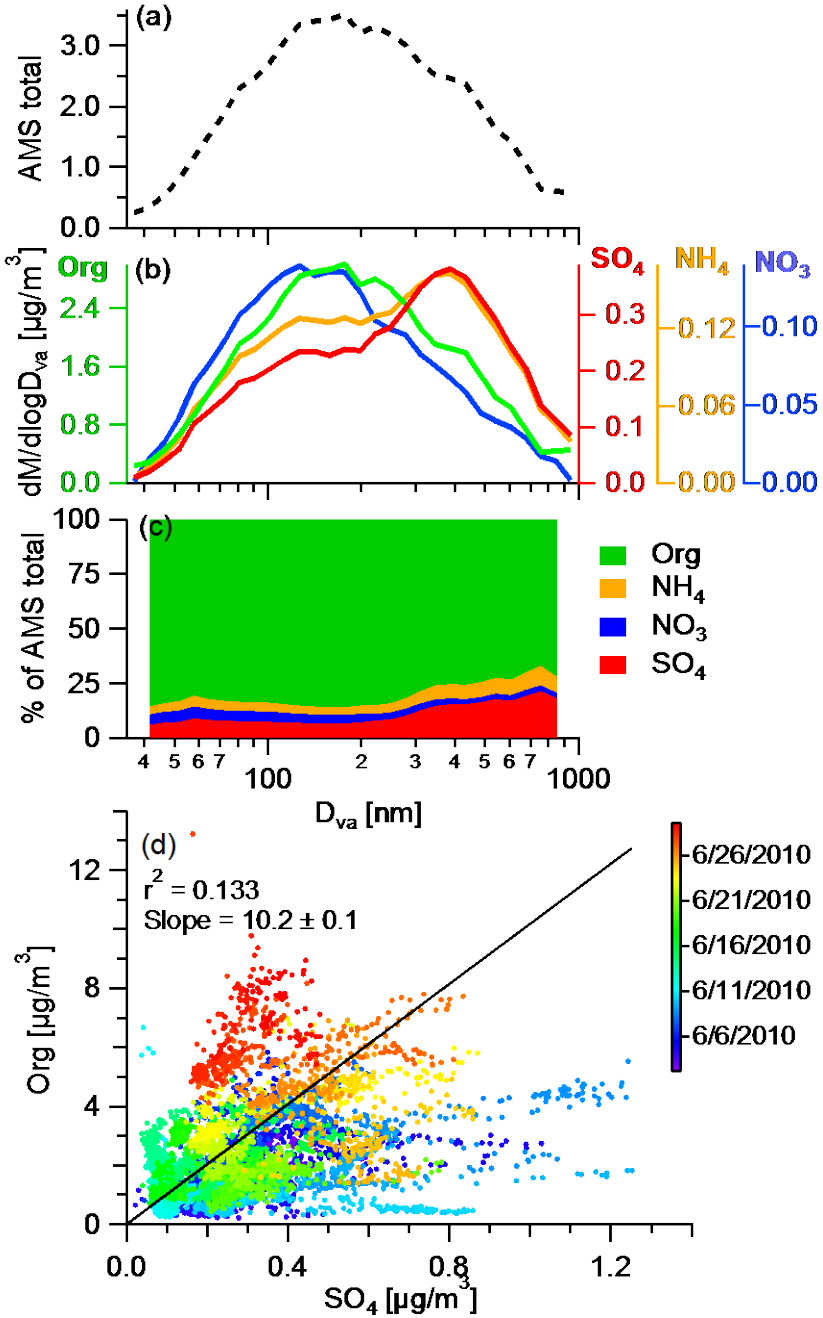


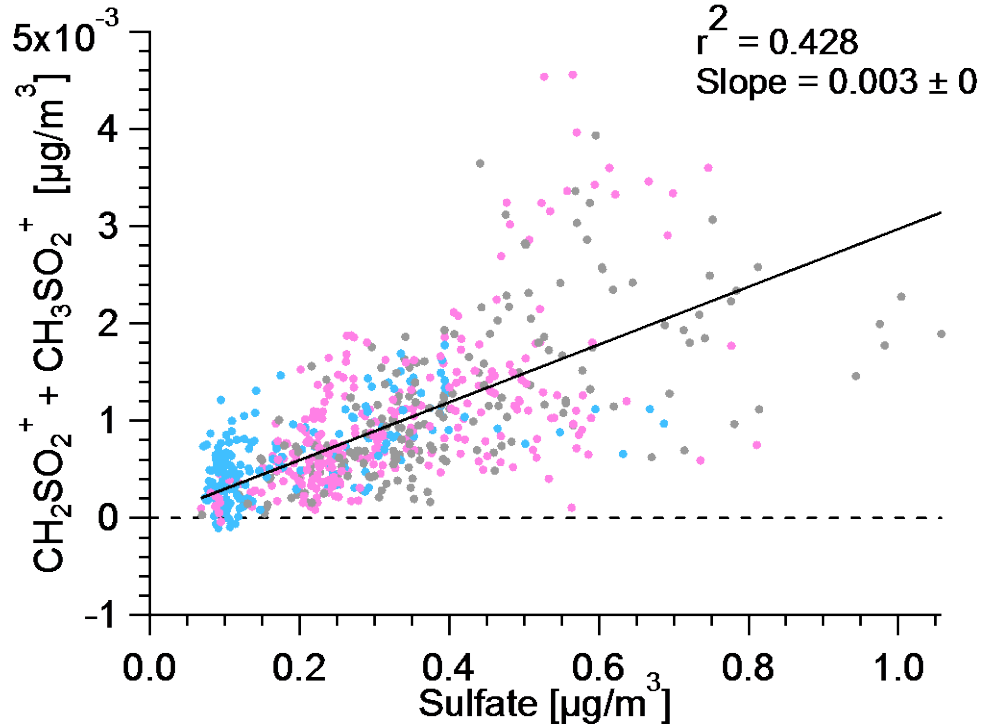
Day time



Night time







Setyan et al., ACP, 2012