Aerosol size distribution and CCN spectrum observed at T0 site during MILAGRO

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Diurnal variations, weekdays
(Diurnal variations on Saturdays are similar to those during weekdays)

Diurnal variation, Sundays

High aerosol number and volume concentrations observed early in the morning during weekdays, likely due to both primary traffic emissions and secondary organic aerosol formation through photochemical reactions.

Decreasing aerosol number and volume concentrations, likely due to the increase of boundary layer height.

High number concentration of nucleation and Aitken modes particles were often observed early in the afternoon. At the same time, the particle volume concentration remained low. This is likely a result of new particle formation through homogeneous nucleation and subsequent growth into SMPS measurement range through condensation.

Lower aerosol volume concentration and less diurnal variation observed on Sundays.

Increased aerosol number and volume concentrations, possible due to the formation of stable surface layers and accumulations of air pollution.

Decreasing particle critical activation diameter (D_{pc}) and increasing CCN concentration, possibly due to the formation of soluble species, (e.g nitrate) through photochemical reactions.

Less diurnal variations in CCN concentration observed on Sundays

Dry aerosol size distribution measured by a SMPS

Dry aerosol volume size distribution, derived from SMPS measurements

Integrated number concentration of particles with diameters ranging from 15 to 500 nm

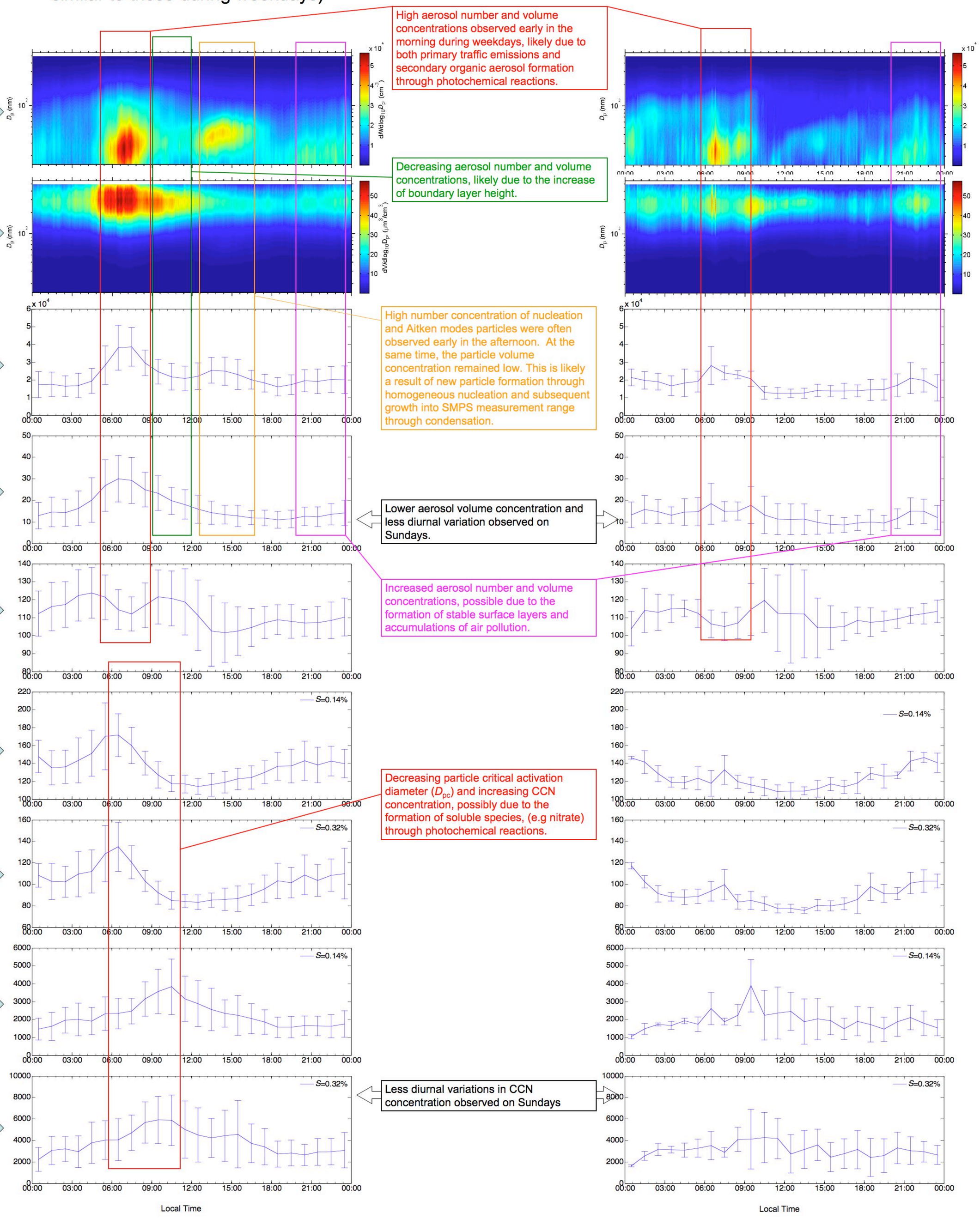
Integrated volume concentration of particles with diameters ranging from 15 to 500 nm

Volume-average diameter of particles with diameters ranging from 15 to 500 nm.

Effective particle critical activation diameter (D_{pc}) at 0.14% supersaturation, derived from following equation:

$$N_{CCN} = \int_{D_{pc}}^{+\infty} n(D_p)\,dD_p$$

Effective particle critical activation diameter (D_{pc}) at 0.32% supersaturation

Aerosol CCN concentration at 0.14% supersaturation

Aerosol CCN concentration at 0.32% supersaturation