Ozone Vertical Profiles Measured During The Front Range Air Pollution and Photochemistry Experiment (FRAPPE) from Tethered Ozonesondes in July-August 2014.

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Ozone, temperature, humidity, and wind direction profiles were measured by tethered ozonesondes at three different sites within the Colorado Front Range during July and August 2014. Over 340 profiles were obtained over the course of 10 observing days at Ft. Collins West, Denver City Park Golf Course, and Chatfield State Park. Although ozone mixing ratios did not exceed the EPA standard of 75 ppb for a maximum daily 8 hour average (MDA8) significant ozone production was seen on most days. On several days the measured mixing ratio through the profile was >65 ppb with the largest mixing ratios >85 ppb seen on August 3 at the Ft. Collins site (Figure 1). Typically at all three sites ozone mixing ratios began to increase rapidly through the entire column observed with the tethersonde beginning later in the morning reaching a peak by mid to late afternoon. The generally constant mixing ratio with height and highest mixing ratios above the surface indicate that photochemical ozone production was taking place throughout the profile. High values at each site were associated with different local wind directions. At Ft. Collins winds were generally out of the southeast, at Chatfield from the northeast, and at City Park somewhat less well determined.

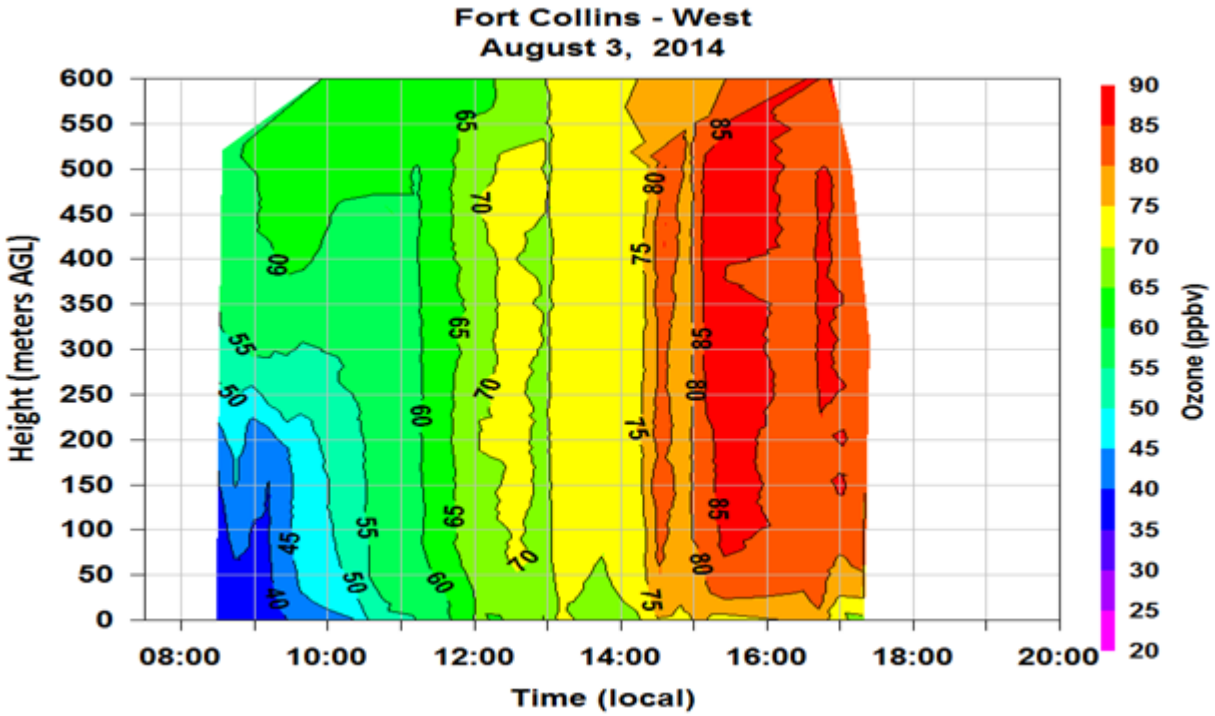

Figure 1. Time/Height cross-section of ozone mixing ration (ppb) at Ft. Collins on August 3, 2014.