



Comparison and spatiotemporal analysis of ozone from Pandora, ozonesonde, and ozone lidar measurements during OWLETS

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Pandora has long been compared and validated against satellite and other ground remote sensing instrumentation. However, recent advancements in both Pandora and active remote sensing platforms require additional comparisons and validation. Coupling this with in-situ measurements of ozone creates a strong vertically resolved dataset that can additionally be used in tracking ozone variability. In anticipation of geostationary air quality missions, understanding sub-pixel tropospheric ozone variability from ground-based remote sensing and complimentary measurement platforms will be needed for proper analysis of future retrievals. OWLETS (July-August 2017) investigated the southern Chesapeake Bay to better understand the variability of ozone and other trace gases spatiotemporally over the land-water interface. Comparisons and validation of columnar ozone are made using observations from Pandora spectrometers, ozonesondes, ozone lidars, and other complementary measurement platforms. Further, evaluation of diurnal column ozone behavior in different air quality regimes is presented using the high temporal resolution of Pandora measurements relative to other remote sensing methods. The results of this study will show the variability in tropospheric ozone spatiotemporally and relative to other measurement methods.