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Day and night characterization of smoke aerosols during the BORTAS experiment

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During the summer of 2011 the BORTAS (BOReal forest fires on Tropospheric oxidants over the Atlantic using Aircraft and Satellites) field campaign was carried out over eastern Canada and the western Atlantic. Both passive and active optical measurements were carried out at Halifax, NS using ground-based sun/star photometry and backscatter (Raman) lidar. We employed these ground-based measurements along with supporting information such as CALIPSO (satellite based) lidar profiles, MODIS imagery, chemical transport modeling and backtrajectories to characterize the day / night transition of smoke plumes over Halifax during an extended series of smoke events that lasted from July 17 to 26 (traceable to forest fires in western Ontario). Preliminary analysis indicates a physical coherence between these diverse data elements including day / night continuity of the submicron (smoke) optical depths derived from the sun and star photometer spectra and covariance between the passively derived optical depths and those from the Raman lidar.