

Sub-micron particle characterization downwind the Tula industrial area

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To characterize physical properties of sub-micron particles in the neighborhood of the Tula industrial area, during the MILAGRO field campaign in 2006, an Integrating Nephelometer (Model 3563 TSI), a SMPS (Model 3936 TSI), and Aethalometer (Magee Scientific, Model AE-16), were deployed to measure 10 minutes average values for light scattering coefficients, particle size distribution, and black carbon concentration, approximately 5 km downwind from Power Plant and Refinery, at the Jasso station. Additional measurements of criteria pollutants and meteorological parameters were also performed at this site to identify potential particles sources and air mass changes.

Results showed that, almost every day, sub-micrometric particles concentration below 150 nm, grew up continuously from 00:00 to 06:00 h. On the contrary, particles concentration in the diameter range upper than 600 nm, were bigger from 16:00 to 20:00 h, during 3 days only. Furthermore, nucleation and accumulation modes were identified in the ranges size below 100 and 300 nm, respectively.