

Aerosol optical depth, backscattering profiles and column NO₂ measurements in Tenango del Aire during MILAGRO.

Andrés Hernandez, Roberto Basaldud, Michel Grutter, Darrel Baumgardner, Luis Gerardo Ruiz-Suárez, Ricardo Torres. Centro de Ciencias de la Atmósfera, Universidad Nacional Autónoma de México (UNAM), 04510 México D.F., México

James Slusser. Ultraviolet Monitoring and Research Program, Natural Resource Ecology Laboratory, Colorado State University, Fort Collins, CO 80523, U.S.A.

Rainer Steinbrecher, Institute of Meteorology and Climate Research, Atmospheric Environmental Division, Forschungszentrum Karlsruhe, 82467 Garmisch-Partenkirchen, Germany

The Tenango del Aire site (19.16°N, 98.86°W, 2380 masl) is located some 40 km SE from Mexico City in the Chalco Valley, where some pollution outflow has been predicted by air quality models. Direct and diffuse ground-based irradiance measurements have been made at this site during the MILAGRO field campaign by a UV-MultiFilter Rotating ShadowBand Radiometer (UV-MFRSR) at seven channels (300-, 305-, 311-, 317-, 325-, 332- and 368-nm with 2-nm nominal bandpass) from which several parameters could be calculated, including the aerosol optical depths (AOD), total ozone column (TOC), asymmetry factor (g) and aerosol single scattering albedo (SSA) via an optimal estimation algorithm. NO₂ and SO₂ column concentrations were measured with the zenith-sky DOAS (differential absorption spectrometer) technique. LIDAR (light detection and ranging) remote sensing of aerosols was done with a Vaisala Ceilometer Model LD40 from which mixing layer heights were estimated. The results of these measurements and a preliminary analysis of the possible sources of the aerosols are presented.