Airborne measurements of aerosols and radiation during MILAGRO 2006

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An instrumented microlight aircraft has been used during the Milagreo campaign to characterize the aerosol vertical distribution and its radiation impact in the southeast of Mexico City. The aircraft was operated out of Puebla airport and flights covered the southeast of the Mexico City basin south of Chalco down to Huexca, the main venting area for the basin. The aircrfat carried a set of instruments for particle size distribution, scattering and absorption as well as radiation instrumentation for actinic flux and global radiation budget. Additionally azenith sky DOAS and a VOC sampler was installed. Vertical profiles were flown close to Puebla airport, above Chalco and the Tenago field site, where also a Ceilometer was operated continuously for characterisation of the boundary layer structure, and south of Volcano Popocatepetl. While in the Mexico City basin windblown dust dominated all other areas showed a strong contribution from intense biomass burning. In the mainly southerly advection in all elevations of the planetary boundary layer high particle concentrations with variable spectral absorption features were found. Radiation measurements were often affected by the strong Pyro-Cumulus development above the national park at Popocatepetl and Ixtachiuatl.