



Characterization of air pollution in Mexico City by remote sensing

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Megacities, like the Mexico City Metropolitan Area, are home to a large fraction of the population of the world and a consequence is that they are one of the biggest sources of contaminants and greenhouse gases emitted to the atmosphere. The pollution is visible from space through remote sensing instruments, however, satellite observations like those with NADIR viewing geometries have decreased sensitivity near the Earth's surface and the analytical algorithms are in general optimized to detect pollution plumes in the free troposphere or above. Ground-based observations are thus necessary in order to reduce uncertainties from satellite products. As we will show, Mexico City and its surroundings is well characterized by ground-based remote sensing measurements like from two stations with solar-absorption FTIR spectrometers and a newly formed network of MAX-DOAS and LIDAR instruments. Examples will be provided of how the evolution of the mixing-layer height is characterized and the vertical column densities and profiles of gases in and outside the urban area are continuously monitored. The combination of ground-based and space-borne measurements are used to improve the current knowledge in the spatial and temporal distribution of key pollutants from this megacity.