



Air pollution of Moscow by the carbon monoxide and aerosols, boundary layer parameters and estimation of the CO sources intensity.

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The results of measurements of the carbon monoxide total content, the soot and submicron aerosols content are given for the period 2005-2008 over Moscow. Two identical grating spectrometers of medium resolution ($0,2\text{nm}^{-1}$) are used with appropriate solar tracking systems, one of which is located outside the city at Zvenigorod Scientific Station (ZSS 56°N , 38°E , 60km West from Moscow in the rural zone) and the other one is inside a city center. This method makes possible to determine the characteristics of anthropogenic pollution, urban part of the CO content. Some simultaneously measurements of aerosols content, the CO column and CO background concentrations in Moscow, autumn 2007 are presented. Nephelometer and quartz filters for soot sampling were used for aerosols measurements. Correlations coefficients between aerosols, CO background concentration and urban part of the CO content were obtained. Permanent sounding of boundary layer was carried out using acoustic locator (SODAR) LATAN-3. Applications of SODAR data (profile of wind speed and inversion height) makes possible to forecast of air pollution situations in megacities area. We obtained the correlation coefficients for the urban part of the CO content with the wind speed for cold and warm seasons. Analysis results of measurements demonstrated preeminent influence of the wind in certain boundary layer (up to 500m) upon the CO extension. The intensity of CO sources in Moscow was estimated. The systematization of CO diurnal variations for different meteorological conditions was performed. Comparing our results with the results of the earlier measurements period (1993-2005), we found out that the urban part of the CO content in the surface air layer over the city did not increase in spite of more than tripled number of motor-vehicles in Moscow. So using the applications of this spectroscopic method we can obtain the air pollution trend from the averaged air pollution measured values.