



Changes in atmospheric composition over East Asia

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An analysis of long-term spectroscopic IAP CAS and OIAP RAS CO and aerosol data sets in Beijing before and after 2007 is presented.

We have find total decrease in CO total column (TC), in BC surface concentration, in aerosol optical depth (AOD) and stability of PM1 in 1992-2016 time-periods.

After 2007 value of negative trends in gaseous and aerosol pollution of Beijing increased significantly.

Also with using satellites data of CO TC (AIRS v6), satellite data of AOD (MODIS) and ground-based AOD data (AERONET network) we obtained a significant decrease all of these pollution characteristics in different regions of China and total their decrease for all territory of China, for different seasons especially after 2007.

Season variations and weekly cycles of CO, aerosols and meteorological parameters for few Chinese sites are analyzed. The particular parameters of transition relations between satellite products MOPITTv6 Joint, AIRSv6 and MODIS were received for the period of 2010–2015. It was shown that AIRSv6 data underestimates the actual value of CO TC for Beijing by the factor of 1.5. Both CO orbital sensors have relatively low correlation ($R^2 \sim 0.3-0.4$) with diurnal ground-based data. Significant correlation ($R^2 \geq 0.7$) between satellite (MODIS) and ground-based (AERONET) data of AOD for three Beijing stations and Xianghe station.

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