Geophysical Research Abstracts
Vol. 17, EGU2015-5419, 2015
EGU General Assembly 2015

NO_x emission estimates during the 2014 Youth Olympic Games in Nanjing

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The Nanjing Government had taken temporary environmental regulations to guarantee good air quality during the Youth Olympic Games (YOG) in 2014. To study the influence of those regulations, we used the emission estimate algorithm DESCO (Daily Emission estimates constrained by Satellite Observation) applied to the measurements of the Ozone Monitoring Instrument (OMI). We improved DECSO by using an updated chemical transport model CHIMERE v2013 instead of CHIMERE v2006 and adding an Observation minus Forecast (OmF) criteria to filter wrong satellite retrievals due to high aerosol concentrations. The comparison of model results with both ground and satellite observations indicates that CHIMERE v2013 is better performing than CHIMERE v2006. After filtering the satellite observations with large OmF, the unrealistic emission estimates have been removed. Despite the cloudy conditions during the YOG we could still see a slight decrease of NO_2 concentrations of about 10% in the OMI observations as compared to the average NO_2 concentrations from 2005 to2013. The results of the improved DECSO algorithm for NO_x emissions during the YOG will be shown in this presentation.