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Fast update of China's NOx emission inventory by integration of bottom-up method and satellite observations

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The bottom-up inventory usually has a time lag of generally 3-4 years due to the availability of statistical activity data. Here we provide a fast method for estimating China's monthly NOx emissions by integration of the bottom-up method and OMI observed NO2 trends. We analyzed the correlations between OMI NO2 trend and economy/energy indexes and used these correlations to predict NOx emissions. Using this method it is possible to develop a fast estimate of NOx emissions with only six months lag. We estimated that China's NOx emissions were decreased after Beijing Olympic Games and began to rebound after 2009 summer. This trend agrees well with the OMI observed NO2 trend over China.