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Atmos. Chem. Phys., 9, 6351-6361, 2009

www.atmos-chem-phys.net/9/6351/2009/

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Tula industrial complex (Mexico) emissions of SO₂ and NO₂ during the MCMA 2006 field campaign using a mobile mini-DOAS system

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Abstract. The Mexico City Metropolitan Area (MCMA) has presented severe pollution problems for many years. There are several point and mobile emission sources inside and outside the MCMA which are known to affect air quality in the area. In particular, speculation has risen as to whether the Tula industrial complex, located 60 km northwest of the MCMA has any influence on high SO₂ levels occurring on the northern part of the city, in the winter season mainly. As part of the MILAGRO Field Campaign, from 24 March to 17 April 2006, the differential vertical columns of sulfur dioxide (SO₂) and nitrogen dioxide (NO₂) were measured during plume transects in the neighborhood of the Tula industrial complex using mobile mini-DOAS instruments. Vertical profiles of wind speed and direction obtained from pilot balloons and radiosondes were used to calculate SO₂ and NO₂ emissions. According to our measurements, calculated average emissions of SO₂ and NO₂ during the field campaign were 384±103 and 24±7 tons day⁻¹, respectively. The standard deviation of these estimations is due to actual variations in the observed emissions from the refinery and power plant, as well as to the uncertainty in the wind fields at the exact time of the measurements. Reported values in recent inventories were found to be in good agreement with calculated emissions during the field campaign. Our measurements were also found to be in good agreement with simulated plumes.

- [Final Revised Paper](#) (PDF, 7681 KB)
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Citation: Rivera, C., Sosa, G., Wöhrnschimmel, H., de Foy, B., Johansson, M., and Galle, B.: Tula industrial complex (Mexico) emissions of SO₂ and NO₂ during the MCMA 2006 field campaign using a mobile mini-DOAS system, Atmos. Chem. Phys., 9, 6351-6361, 2009. [Bibtex](#) [EndNote](#) [Reference Manager](#)



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