

Interactive comment on “Tula industrial complex (Mexico) emissions of SO₂ and NO₂ during the MCMA 2006 field campaign using a Mini-DOAS system” by C. Rivera et al.

Anonymous Referee #2

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General comments

This manuscript presents measurements done near an important industrial complex near Mexico City in order to estimate its emissions during the MILAGRO field campaign. For this purpose, the authors deployed passive DOAS instruments and report SO₂ and NO₂ fluxes and compare them with current emission inventories. Evidently, the most important conclusion is that the values reported in recent inventories compare well with the measurements and that the emission factors are adequate for calculating the emissions based on reliable energy consumption and power generation. This should be specifically stressed in the abstract and detailed in the conclusions. The arti-

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cle is well written, provides relevant information and should be accepted for publication in ACP after some considerations.

Specific comments

- I suggest to avoid the usage of mini DOAS. Size is not relevant in this case. Other characteristics such as mobile, passive, zenith sky, etc. could better describe the nature of this measurement set-up.

- use tones per day (t/d) rather than ktons per year in the abstract and conclusions since this would reflect better the results obtained during a 2-3 week campaign. Large variations in power generation and production from this industrial complex would speak against an extrapolation. Kt/y is OK for comparing with inventories but not to be reported as a measured quantity from a limited data set.

- specify in p.5157, l.25 if O₃ is used in the fit of both retrievals or only for SO₂.

- Please comment on the large difference observed in wind speeds from both sounding and pilot balloon measurements in Fig.2. Is this also the case for other days and times when there are coincident information? How was the plume height determined? It is imperative to take into account the issue about the effective plume height since this will have a direct influence in the flux result.

Technical corrections

p.5156 l.2 use comas ", however,"

p.5156 l.26 no need for capital letters. Write for example: "In this case, scattered sunlight in the direction of the zenith was collected by the passive DOAS method."

p.5157 l.23 remove "in this way"

p.5157 l.29 cited software is not in the reference list.

p.5158 l.9 write "in the following section."

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p.5159 l.5 replace "and" with "from which the"

p.5160 l.4 and l.7 no need to capitalize cold surge.

p.5160 l.19 write "...when northerly winds appeared."

p.5160 l.24 replace "in" with "around"

p.5161 l.8 write "...in a particular transect are mainly responsible for the observed variation in the estimated fluxes"

p.5161 l.13 write "deviations"

p.5161 l.23 write "As for emissions from power generation plants,"

p.5162 l.22-25 rephrase paragraph and make readable.

p.5163 l.21 rephrase and correct the structure of the sentence.

pp. avoid using the term emission fluxes throughout the text: use either flux or emission

Fig 2. correct spelling of the word balloon

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 5153, 2009.