

Interactive comment on “Mexico City basin wind circulation during the MCMA-2003 field campaign” by B. de Foy et al.

B. de Foy et al.

Received and published: 26 July 2005

The authors would like to thank the referees for their constructive criticism of this paper.

1. General Comments

1. Referee #1:

- (a) The climatological representativeness of MCMA-2003 is indeed a very important question. It is not possible however to address this and shorten the paper at the same time. By comparing the episode types with previous work,

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

there is some degree of historical perspective. Future work could address this question, and this was added to the conclusion section.

2. Referee #2:

- (a) With respect to the organization of the paper, the tension between the distinct target audiences is reflected in different possibilities for arranging the sections. It was decided to go from larger to more local scales and also from surface meteorological measurements to point vertical observations and on to chemical measurements. In addition to this, it was decided to include the smallest scale observations at the campaign supersite with the synoptic description at the beginning to show how the 3 episode types influenced the full range of scales. Having shown this up front, it is then possible to use the 3 episode types for the rest of the paper. Section 4 was split into 2 and the section labelling was modified to clarify this. Clearly, alternatives are possible, but it is our belief that the possible gains of a reorganisation would be offset by losses elsewhere.
- (b) The main method of the paper is not to reduce the meteorology to one individual factor. In seeking to find patterns in the meteorological conditions, this paper specifically leaves open the question of which factors come into play and how. Furthermore, it is not claimed that the 3 episode types account for all the variation observed. Figures showing all the data as boxplots are used instead of averages so that the reader may form his own opinion as to the variability within each class. Section 10 was included to account for individual variations within the classes on days of particular interest. Due to space limitations it is not possible to describe each day in detail.

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

2. Specific Comments

1. Referee #1:

- (a) Previous studies of the Mexico City basin circulation have taken place as part of varied field campaigns with different objectives. Rather than impose a structure that isn't there, it was decided to keep a broadly chronological order to give a sense of the variety of previous work. Some of the studies are re-analyzed in terms of the present work in the discussion section.
- (b) Yes, changed.
- (c) Changed.
- (d) Changed.
- (e) At this time, the classification is subjective. The text was ammended to clarify this and to discuss the variations within the classes.
- (f) To preserve continuity with past work, the same criterion was used as Fast et al. 1998 (see page 18,934). We do not have the level of data required by the more sophisticated methods described in Seibert et al. For Mexico City however, the mixing height is (physically) very clearly defined and different methods all yield similar results. Explanation was added to the text (see also ref #2 comment).
- (g) Done already.
- (h) Caption added with station height above sea level and height of 500hPa level.
- (i) See above.
- (j) See above.

2. Referee #2:

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

- (a) Sentence added.
- (b) Changed.
- (c) The paragraph was re-ordered to give a more accurate impression of the Whiteman paper. The relevant section for the nocturnal inversions can be found on pg 10,086.
- (d) Please see second-to-last paragraph of the conclusions.
- (e) Added to conclusion.
- (f) Reworded.
- (g) Added discussion of variability.
- (h) Added time of day range to text. While colored circles would be more exact, they would make the plot even more difficult to read. This figure was included due to popular demand and serves as a visual index. Detailed analysis needs to be based on full sized individual plots. It should be noted however that ozone, being a secondary product, varies much more smoothly than primary pollutants thereby justifying a spatial interpolation.
- (i) The flows described by Bossert were already included in the introduction and are discussed in relation to the episode types in the discussion. This section describes the convergence of the Gulf and Pacific flows which differs from the plateau-to-basin terminology used by Bossert.
- (j) This would be too much for a single figure.
- (k) Identifiers were added, and reference to appropriate figure.
- (l) Changed.
- (m) Changed.
- (n) Text changed, see above.
- (o) Reworded + sentence added.

[Full Screen / Esc](#)[Print Version](#)[Interactive Discussion](#)[Discussion Paper](#)

- (p) Text clarified.
- (q) Changed.
- (r) Comment added in text.
- (s) Changed.
- (t) Text rephrased + clarified.
- (u) Paragraph added in conclusions.

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper