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Atmospheric Chemistry and Physics Discussions

Interactive comment on "CUACE/Dust – an integrated system of observation and modeling systems for operational dust forecasting in Asia" *by* S. L. Gong and X. Y. Zhang

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We would like to thank the reviewer for the detailed review of our manuscript which gives us the opportunity to clarify some points. In the following we quoted each review question in the square brackets and added our response after each paragraph.

[The manuscript presents an overview and some highlights of a series of papers related to the development and application of a regional forecasting model of dust storms over Asia. As an overview paper, we learn very little about the model and the results of its application. Some dust forecasting models have been operational for some years, and the originality of the work seems to be in the assimilation of the measurements of dust properties. I guess this model is the results of a tremendous amount of work which

needs to be documented through a series of papers. Perhaps it is a question of style, but the present manuscript does not awake a particular interest to start reading the other papers and learn more about the model.]

We agree with the reviewer that this system was developed with a large group effort. What we intended to present in this paper is the highlights of the entire project and key results of the papers in this special issue. However, we have taken the reviewer's comments into consideration to revise the paper so that it encourages readers to read other papers in the issue.

[Figure 2: A 1 m/s anomaly of zonal wind speed at 850hPa over China does not seem to be a very strong signal. Does the 1 m/s contour pass 95% (or more) confidence level? What is this black & white inlaid map?]

A 1m/s anomaly of zonal wind speed at 850hPa is significant considering the fact that this anomaly is averaged over the entire spring 2006 and is systematic. The B/W inlaid map is part of territory of China in the South China Sea.

[Figure 3: What is the relevance, in an overview paper dedicated to dust storms in Asia, to present a Figure comparing results in the US? Furthermore, the physical meaning of the brown curve is unclear. It depends on what part of the manuscript I read. From the text, I would understand that the SDS is for US, and interpret that the code of SDS detection calibrated over China can also be applied over US. But from the Figure caption, I understand that the SDS is for China. Then I would interpret the Figure as an illustration of the correlation between dust storms over Asia and dust concentration at the surface on the US West coast. But this is beyond the subject of this manuscript, and would need much more data to support. I would replace this Figure by one more relevant.]

The transport and influence of Asian SDS to North America was discussed in a paper in this special issue. The purpose of this figure is to illustrate the connections between SDS in China and PM surface concentrations in US. Since full details of this connection

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were featured in a paper and therefore, we decided to keep this figure to highlight the detailed paper by Zhao at el. One important point to show this figure is also the usefulness of the application of "SDS process number" in the analysis of SDS related phenomena. The brown curve illustrates the SDS process numbers in China from 2000 to 2005.

[Figure 4: Good and informative figure. I suppose that the caption should read "SDS observation stations" by the "CMA"]

Yes. We have changed the figure caption. Thanks.

[Figure 5. The plots are ineligible and the caption is not helpful.]

We have revised the figure caption to explain the features of each plot.

[Figure 6. On the right panel, what is the value of the pink shading, or is it Chinese characters? What are all these inlays? What is this new acronym "CAWAS" in the title?]

Thank you for pointing out these. We have added the explanation of each pink symbol and the acronym "CAWAS". Again, the inlays are the legal requirement for showing Chinese map for part of the territory in the South China Sea.

[Figure 7. Where is located Zhurihe? Do you think mentioning that it is located West of Onqin Daga is helpful?]

We have added the geographical coordinates of Zhurihe station.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 10323, 2007.