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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Boundary layer structure characteristics under objective classification of persistent pollution weather types in the Beijing area" *by* Zhaobin Sun et al.

Anonymous Referee #2

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The paper deals with the pollution in the Beijing area. The authors suggest a method based on objective classification and identify four weather types that can promote intense pollution. The work is interesting, however I have some general concerns. First of all, it is well-know that the pollution is strongly influenced by the meteorological conditions both at local and large scale. In this sense, the paper does not add any novelty to the literature. Second, the number of cases considered (32) seems to be not sufficient for a statistical analysis. Third, the results are not compared with any other methods in order to assess the feasibility of the proposed procedure.

My general impression is that the great effort made by the authors in terms of mea-

surements and data analysis does not yield to robust and founded results.

Other comments

In the discussion the authors go deep into details but the effect is loss of clarity and some of the statements appear to be conjecture rather than evidence.

In Figure 1 it is not clear what does represent the last panel (i). I suggest to move it to another figure.

Figure 3: Are the profiles a mean over a period?

Figure 5: Same as for Figure 3

How long do the events last and how is the duration defined?

How are conceptual models built? Is some method used or are they simply qualitative?

Lines 428-429 This sentence is not clear. What is the pollution weather pattern and how it causes the pollution boundary type.

In summary, it is not clear what the applicability of this method is. It is not clear whether it can be applied to other cases. In general it seems to me that the conclusions of this work are already well known and this article does not add much more. It is known that the height of the boundary layer is related to pollution as well as other weather factors have a direct influence on the presence of pollutants.

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