

***Interactive comment on “A quasi-Lagrangian coordinate system based on high resolution tracer observations: implementation for the Antarctic polar vortex” by E. V. Ivanova et al.***

**Anonymous Referee #1**

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General Comments

This paper describes an analysis of tracer measurements inside and around the Antarctic polar vortex using a tracer-based quasi-Lagrangian coordinate system. I see no problems with the analysis, and the results presented are of interest and suitable for publication in ACP. However, I think the manuscript needs revisions before it can be published.

Major Comments

I think the manuscript needs to be made more concise before it can be published,

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and I would also recommend trying to minimize the text in all sections. Some explicit examples are below:

1. The questions that the paper is addressing need to be started more clearly, and nearer the beginning of the paper. In fact I am not even sure the questions that are to be addressed are actually stated in the Introduction.

The introductory sentences in Section 3 are I think the main justification for this work and should be made in the first or second paragraph of the paper. Then state how this analysis will address this issue.

2. The manuscript is very long, and includes lots of introductory / review material, both in the Introduction and within the main body.

Two examples include the first 3 paragraphs in the Introduction, and discussion of tracer-tracer relations in Section 4. In both these places I think discussion can be made a lot shorter with a few key references.

3. The conclusions also need to be more concise. Item (i) is not a conclusion, it is what you did. In the other items there are conclusions but they are not stated very concisely. A busy reader will flip to the conclusions section to see what the conclusions are, and the more concise you make this the more likely they will read the paper.

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Interactive comment on Atmos. Chem. Phys. Discuss., 8, 16123, 2008.

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