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Interactive comment on "Case studies of ozone transport between North America and Europe in summer 2000" *by* G. Guerova et al.

G. Guerova et al.

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We are much grateful to the Referees for their valuable comments on this manuscript. The critical remarks and comments will help to improve the quality of the work. Here is a summary of our intentions and responds to the questions raised by the three anonymous Referees (Ref#1, Ref#2 and Ref#3).

Reply to the general comments of Ref#1, Ref#2 and Ref#3

Title:

Based on remarks of Ref#2 and Ref#3 we will change the title to reflect better the focus of the work.

Introduction:
We agree with the suggestion to extend the introduction. The suggested manuscripts as well as others will be taken into account.

Section 2, 4:
We will rewrite sections 2 and 4 to avoid unnecessary lengthen of the manuscript. In particular, we will rewrite section 4 following Ref#2's suggestions, and will introduce a table to summarize our findings on individual events.

Section 5.1:
We agree that the model is not capable to reproduce very well the ozone observed at Jungfraujoch (JFJ). Unfortunately, our model does not offer a better representation of this site. To our knowledge there is no tracer continuously observed at JFJ which could be used to identify easily long range transport (LRT) events. CO observations were initially included in our work, but this did not help to identify clearly the LRT events. This section will be however improved, as further detailed in the following.

Section 6:
This section will be rewritten to include a more detailed discussion on the results and uncertainties.

Reply to the specific comments of Ref#3

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"It is obvious that an intercomparison with data from mountain stations requires a careful analysis of the advection conditions. There is a host of literature on the Alpine wind system. The influence of the local wind system on the data registered at the mountaintop stations was an issue, e.g., for the data selection during the TOR subproject of EUROTRAC in the early 1990s. I did not examine if the work by Li et al. cited is the most adequate choice, but I suggest a closer look at the relevant literature. The statements about Foehn events and fronts are misleading since they have nothing to do with trans-Atlantic transport. The respective time periods and can be easily excluded by a simple analysis."

We agree very much that caution is needed when interpreting the JFJ data. In the revised version of the manuscript we will try to examine the weather situation by using a trajectory model of MeteoSwiss. This will allow us to further confirm the LRT events. The trajectory model has a much better spatial and temporal resolution compared with GEOS-CHEM.

Interactive comment on Atmos. Chem. Phys. Discuss., 5, 6127, 2005.