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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Partitioning of reactive nitrogen (NO_y) and dependence on meteorological conditions in the lower free troposphere" *by* C. Zellweger et al.

C. Zellweger et al.

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Response to Referee #2

We would like to thank Referee #2 for his interest in our paper and his comments and suggestions. Both his general and specific comments are addressed below.

We agree that the fact that NOy mixing rations and speciation depend on meteorological conditions is indeed not very surprising. The paper, however, also mentions how the meteorological processes influence NOy mixing rations and speciation, which is less straightforward. The understanding of these processes is important for the interpretation of the whole data set.

Specific comments:

P. 3: It is both uncertainty and variability. The extent of the variability can only be estimated when relatively long term measurements are available. Since this work presents the first "longer" time series of NOy (with seasonal speciation) over Europe, it may contribute to the understanding of level, variability and speciation of NOy over Europe.

P. 6: The PLC conversion efficiency is variable because the intensity of the UV lamp used for the conversion of NO2 decreases with time. This does not indicate a problem, since the decrease is fairly constant, and the conversion efficiency was determined daily to cover the drift.

P. 14: It is NOy/CO as stated in the manuscript.

P. 18: We do not claim novelty. We will rephrase the sentence to "Alternatively, the NOy/CO ratio proved to be an interesting approach in assessing the age of an air mass at the Jungfraujoch". Work of Parrish and Stohl will be cited in section 3.2 in a revised manuscript.

The technical comments will be corrected as well in a revised manuscript.

Interactive comment on Atmos. Chem. Phys. Discuss., 2, 2259, 2002.