

## ***Interactive comment on “Statistical analysis of the precision of the Match method” by R. Lehmann et al.***

### **Anonymous Referee #1**

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1. I think that the main message of this paper, how the Match results (i.e. the precision of the Match method) will change if the errors of the particular ozone observations are statistically dependent, is clearly discussed and analyzed. In particular, the importance of this effect on the analysis of satellite data is worked out and critically compared with the balloon-based matches. Thus, at least in my opinion, this material is worth to be published.

2. One minor point that I have is the discussion of the sources of uncertainties of Match (section 3.2). Here, nothing is mentioned on the effect of mixing of the extra-vortex air into the vortex, i.e. into the region where match-observations are carried out. The effect of mixing into the vortex (dilution) with low ozone values from mid-latitudes

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(below 500 K), may lead (systematically) to lower values of ozone during the second observation compared with the first one. Thus, a pure dynamical effect may lead to an "apparent ozone loss" even if chemical ozone loss does not occur.

3. The second minor point would be a recommendation to extend the discussion how this analysis can be applied for different "match-similar" application as e.g. the validation of satellite observation with the Match-technique, where trajectories "connect" satellite observations and in-situ measurements which are used to validate the satellite.

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Interactive comment on Atmos. Chem. Phys. Discuss., 5, 3225, 2005.

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