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Comment

## ***Interactive comment on* “Residual circulation trajectories and transit times into the extratropical lowermost stratosphere” by T. Birner and H. Bönisch**

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We thank the reviewer for her/his valuable comments.

Specific Comments

1. Clear separation between the shallow and deep branches.

See reply to Reviewer 1 and supplement with revised and one added Fig.

2. Seasonality.

Yes, the lines labeled MAM and SON in Fig. 5 refer to trajectories that were initialized

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at their respective arrival latitudes during MAM and SON. In that sense, these seasons really only refer to the arrival points. This has been clarified in the revised manuscript (also for other relevant Figs.). We believe it is still useful to discuss the seasonality based on the arrival points (which we set to 30 K above the local tropopause) as this is related to the seasonality an observer fixed at those arrival points would see.

#### Technical Corrections

3. done

4. done

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Interactive comment on Atmos. Chem. Phys. Discuss., 10, 16837, 2010.

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