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Interactive comment on "DynVarMIP: Assessing the Dynamics and Variability of the Stratosphere-Troposphere System" *by* Edwin P. Gerber and Elisa Manzini

C. Garfinkel

chaim.garfinkel@mail.huji.ac.il

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While providing the TEM velocities will enable a comprehensive analysis of the atmospheric momentum budget, there are differences between the TEM velocities and the Lagrangian transport of mass by the atmospheric circulation. Specifically, the Brewer-Dobson Circulation has historically been deduced both from the residual TEM circulation and from the average time for an air parcel to travel to a given stratospheric sampling region (i.e. the mean age of air or mean age; see chapter 5 of the SPARC CCMVal2 report). Differences can arise due to isentropic mixing and recirculation (Waugh and Hall 2002, chapter 5 of the CCMVal2 report) - the TEM perspective only contains part of the story.

Furthermore, it has been argued that observational estimates of historical changes in mean age do not agree with the simulated trend towards younger age (Ray et al 2014), while observational estimates of w* must rely on reanalyses products which generally do not agree with one another as to the magnitude and sign of recent trends (Abalos et al 2015) and cannot be used to constrain models. Mean age therefore provides a more sensitive test as to whether model simulated trends in the Brewer-Dobson Circulation are reliable.

I strongly suggest that mean age be archived. Note that only monthly mean and zonal mean mean age is crucial, so the data volume is relatively small.

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