

Interactive
Comment

Interactive comment on “Will climate change increase ozone depletion from low-energy-electron precipitation?” by A. J. G. Baumgaertner et al.

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We thank the referee for his valuable comments, which are addressed below.

1 Specific comments

1. "Meridional circulation changes": See the comment by referee #2 and the corresponding reply. The gravity wave scheme accounts for filtering of gravity waves by the background wind, and as such meridional circulation changes should re-

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Interactive Discussion

Discussion Paper



- sult. We will attempt to diagnose meridional circulation (MLT circulation) changes as good as possible for the revised manuscript.
2. "Net flux into stratosphere": We will provide some analysis of vortex characteristics in the simulations and attempt to diagnose the differences in the flux of NO_x into the stratosphere.
 3. "SSW frequency": The model does generate SSWs in the NH, but a proper statistical analysis is not possible from the limited number of years available here. We will provide a brief discussion on this subject in the revised manuscript.
 4. "Northern hemisphere": We will include a discussion of the effects in the Northern Hemisphere as requested.
 5. "inverse EEP effect from ClONO₂": Halogen loading was not modified between the present day and year-2100 simulations in order to avoid mixing of the effects. While this is an interesting question, since only marginal amounts of EEP NO_x reach the lower stratosphere we do not think that this "inverse" EEP effect plays an important role.
 6. "circulation changes": As requested by all referees we will extend this discussion by using additional tracers.

2 Minor comments

1. We will improve the contour line choice as requested.
2. Thanks for pointing that out.