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Atmospheric Chemistry and Physics Discussions

Interactive comment on "The representation of solar cycle signals in stratospheric ozone – Part 1: A comparison of satellite observations" *by* A. Maycock et al.

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As a result of comments on our manuscript made by the reviewers, and in particular the critical review by Judith Lean, the revised manuscript has been altered in several major ways, which are summarized below.

The revised manuscript now:

1) describes substantially fewer satellite ozone datasets. The datasets now included are: SAGE II v6.2 and v7.0, three extended SAGE II datasets from SI2N, and three SBUV datasets. All other datasets in the original manuscript have been removed. This is in response to criticisms of the choice of datasets made by Judith Lean.

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2) focuses more on comparing the solar-ozone responses in recently updated satellite records with their predecessors: SAGE II v6.2 and v7.0; SBUV VN8.0 and VN8.6. Much less emphasis is placed on production of an ozone dataset for CMIP6, which will instead be included in the Part II study that focuses on models.

3) presents and discusses the uncertainties in the solar-ozone responses for the different ozone datasets.

4) includes a more detailed description of the multiple linear regression model and its sensitivities to various assumptions about the regressors and the input data series. This is in response to criticisms from reviewer #3 and Judith Lean about the analysis methodology.

Since substantial changes have been made to the text, we have uploaded the revised manuscript and new supplementary information along with this response. We hope that all referees find the revised manuscript to be significantly improved and suitable for publication in ACP.

Please also note the supplement to this comment:
http://www.atmos-chem-phys-discuss.net/acp-2015-882/acp-2015-882-AC1-supplement.pdf

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