

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

**Anonymous Referee #2**

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The paper describes overall goals and scopes of the DynVarMIP, one of the diagnostic MIPs of the CMIP6. Objective and scientific questions of the project is concisely described. Proposed diagnostics are also reasonably well defined by listing specific variables of interest in the Appendix.

### 1. Scientific questions

One of my concerns is that three key questions in section 2 are not well addressed. It would be helpful what the common biases of the current generation of the models, such as CMIP5 models, and why they are important. It is unclear to me what “the role of dynamics in shaping the climate response to anthropogenic forcings” means. Are there any climate responses that are independent of atmospheric dynamics? This question

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needs to be better justified. Lastly, it would be helpful to describe what stratospheric processes are important in varying time scales. Since not all readers are familiar with stratosphere-troposphere coupling, one or two paragraph long discussion would be useful. If possible, a simple schematic diagram could be useful here.

### 2. Link between key questions and diagnostics

It would be useful to relate each diagnostics, briefly outlined in section 3, to three key questions in section 2. To me, all three diagnostics (i.e., variability, momentum, and heat) are focused on the model biases. It is unclear how they are related with questions 2 and 3.

### 3. Workshop result

It is stated that workshop will be held in June. But, as far as I know, the workshop is already held. It would be helpful what community is concerning about DynVarMIP and what the detailed projects, proposed by DynVar community, for DynVarMIP. These details would be useful for modeler to better understand the nature of the DynVarMIP.

### 4. Data

Abrupt4\*CO2: It is proposed to archive key data for the equilibrium state, year 111-150. But, it would be also interesting to see how circulation reaches equilibrium state by analyzing first 10 or 20 years. Is it possible?

TEM recipe: Please show the mathematical formulation of psitem “on log-p coordinate”. I found that utendvtem and utendwtem are computed on pressure coordinate. Is there any reason not to use log-p coordinate?

### 5. Minor issues:

L100: Please define acronyms of each MIPs. Although this paper is a part of CMIP6 special issue, readers do not need to read all other papers to figure out the acronyms.

L176: Table -> Tables

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L181: Shepherd, in 2016 -> Shepherd, 2016

L183: models by in the -> models by the

L189: circulation are -> circulation is

L201: forcing -> forcings

L209: diagnostics.. -> diagnostics. (delete one dot)

L349: add "-" in front of w\*

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Interactive comment on Geosci. Model Dev. Discuss., doi:10.5194/gmd-2016-80, 2016.