

## ***Interactive comment on “ESMValTool (v1.0) – a community diagnostic and performance metrics tool for routine evaluation of Earth System Models in CMIP” by V. Eyring et al.***

**Anonymous Referee #1**

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Review of ‘ESMValTool (v1.0) - A community diagnostic and performance metrics tool for routine evaluation of Earth System Models in CMIP’ by Eyring et al.

In this very long paper the authors present a new diagnostic tool for comparing climate models against either observations or other models. The paper is written very clearly and is easy to follow.

As the ESMValTool is still under construction and is expected to add more functionalities in future I regard this paper as a snap-shot of the project. For me it's fine to publish it as is. I just have a few general comments/questions and one minor typo that I found.

General comments: i) The ESMValTool is still in development. The single functions or

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namelists are explained in great detail. However, since this undertaking is evolving it would be nice to have some tool or platform to look for changes/additions to the existing namelists and descriptions of new functionalities. Is something like this planned?

ii) If new functions are build, is there a central place where the code is checked/reviewed or how is the quality of the tool being maintained?

iii) The tool checks and corrects certain errors such as units and so on. But from experience there are ‘issues’ that are harder to detect, for example mistakes in sign conventions, soil moisture in Antarctica, zeros instead of missing values over land in the ocean files, ... Mostly these problems are found after a while. So what I would like to say is that the known issues can be changed easily but what about the ones which are not expected/known? Are there any efforts to automatically search for inconsistencies?

v) I find it really helpful, that it can be used to compare a model with observations but also with other models or previous versions of a model. Hopefully, the latter results in more homogeneous data on the archives (see point iii).

Typo: pg 7584, line 6: ‘e.g. CMIP, models’ (i guess at least) should be ‘e.g., CMIP models’

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Interactive comment on Geosci. Model Dev. Discuss., 8, 7541, 2015.