Geoscientific
Model Development
Discussions

Interactive comment on "Earth System Model Evaluation Tool (ESMValTool) v2.0 – diagnostics for emergent constraints and future projections from Earth system models in CMIP" *by* Axel Lauer et al.

Anonymous Referee #1

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The authors present a description of the latest version of ESMValTool, including details on the new evaluation metrics and 'recipes' that are included. These are clearly linked to the original publications which describe the metrics and examples are provided. This is a clear and well structured paper that I am happy to recommend be published with only minor changes.

I do have two minor comments on the tool and its presentation here. The first is regarding the recipe names which seem somewhat arbitrary. It might be clearer if they followed a standardised format. The other comment is on the various example emer-

gent constraint plots. While it's certainly useful to be able to directly compare with the published work, the very different plot styles jars slightly when presented together like this. Would it be possible to make the original paper formatting of the plots optional, otherwise reverting to a single consistent format? Would it also be possible to add R^2 values to the plots to indicate how well a linear fit really captures the relationship in the models?

Other, minor, grammatical comments: L5: "...implemented include ECS..." -> "...implemented include constraints on ECS..." L195: "used as emergent constraint." -> "used as an emergent constraint."

Interactive comment on Geosci. Model Dev. Discuss., https://doi.org/10.5194/gmd-2020-60, 2020.