

Interactive comment on “Regional Climate Model Evaluation System powered by Apache Open Climate Workbench v1.3.0: an enabling tool for facilitating regional climate studies” by Huikyo Lee et al.

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General Comments

This paper describes a software suite, the Regional Climate Model Evaluation System (RCMES), which can be used to evaluate the performance of regional climate models, in particular those that are contributing to the CORDEX regional climate projections project. RCMES is built on top of the Open Climate Workbench (OCW), which is an open source and community-governed software toolkit to facilitate the analysis of cli-

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mate models and observations. RCMES consists of two main parts - a database of observations for which to calibrate models against, and the RCMES toolkits. The toolkits provide functionality to load datasets in multiple formats and from four data sources, without having to know the URLs, etc. of the data sources. The toolkits also provide analysis routines for model evaluation as well as plotting routines for common plots such as the Taylor diagram.

From a software point of view, RCMES provides a valuable resource to the Regional Climate Modelling community in that it provides a standardised set of analysis tools which are comprehensive and easy to use. In particular, the three tiers of user interaction (the CLI, CFiles and using OCW with Python scripting) allows for a shallow learning curve. Standardised analysis routines enable analyses to be directly comparable across research groups, i.e. you know that the bias is computed in exactly the same way for each model / observation comparison. This is especially valuable to the CORDEX consortium, to enable comparison of the model analyses.

The community driven software development and community governance ensures that the software is freely available, that individual or teams of researches can make contributions but that code additions are approached in a peer-reviewed fashion to maintain quality.

The paper itself is comprehensive, well written and provides a valuable overview of the RCMES project, which will help users taking their first steps in using the software and provide a short reference and pointers to more in-depth resources for more experienced users.

I have few comments, mostly centred around grammar, typos, bad citations and clarifications.

I recommend publishing the paper with these minor corrections, which I have listed below.

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"Specific comments"

P2L22: CMIP is currently in its sixth phase. The fifth phase has been completed, but is the one everyone is using. P7L2: Capitalise "yaml" to "YAML". YAML is not part of Python, it is an independent mark up language, so remove "Python" before this P10L9: Can the loader use the CF-compliant standard name, from the attributes metadata in a netCDF file, to load the latitude, longitude, time and level variables? P10L20: Can the loader use OpenDAP to access a remote dataset? P11L2: what is a "granule" in this context? Please define. P12L22: Does the temporal resampling support sub 24-hour temporal resolution? e.g. 3 or 6 hourly. If not, does this mean the toolkit cannot be used to evaluate the diurnal cycle? Having a good representation of the diurnal cycle is very important for regional climate modelling, especially for heatwave extreme events. P14L2: by "slower" do you mean slower in installation time or slower in performance once installed? Please make clear. P14L20: you could also explore creating a Docker container, to make packaging the dependancies easy without the performance hit of a VM. P14L25: isn't github a "collaborative platform where climate scientists can spontaneously share their software updates". What is different here? Please explain. P15L16: "over the years": how long has OCW been active as a project. P18L16: "By combining BMA with ABC, a diagnostic based approach for averaging regional climate models becomes possible": please provide a reference for this.

"Technical corrections"

P2L7: comma after "Yet" P2L13: Change "Because of" to "Due to" P2L25: Change "based on GCM" to "which is based on GCM" P2L29: Change "is" to "are" in "is now underway" P2L32: Change "Because of" to "Due to" P3L8: Define "DOE" P3L8: Bad citation (/citeclimatemodeling) P3L35: Bad citation(citetpodaac) P4L2: change to "fostering the collaboration" or "fostering collaboration between" P4L5: put commas around "therefore" P4L7: capitalise python to Python P4L11: change "as well as describe" to "as well as to describe" P5L2: change "can utilize Open Climate Workbench" to "can utilize the Open Climate Workbench" P5L2: add "(OCW)" after "Open Climate

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Workbench" P5L2: change "build up" to "write" or "produce" P4L7: capitalise python to Python P8L15: change "use" to "uses" in "RCMES CFiles use" P8L22: bad citation ("citetLee17") P10L2: capitalise python to Python P11L3: missing "a" between "covering" and "myriad" - i.e. should be "covering a myriad" P13L8: change "that are recently" to "that have been recently" P13L8: change "long-term trend simulated" to "long-term trend of simulated" P13L20: change "that are deviated from" to "that deviate from" P13L24: these downscaling method are not all simple! P13L26: capitalise "yaml" to "YAML" P14L4: capitalise "python" to "Python" P14L4: change "any types of" to "any type of" all "all types of" P14L6: capitalise "python" to "Python" P14L11: capitalise "python" to "Python" P15L3: bad citation citetapache P15L5: change "climate scientists" to "climate scientist" P15L6: change "becomes of" to "would become of" P15L6: "everyone and anyone" not necessary P16L3: by "committers" do you mean "code committers"? P16L6: change "last release" to "latest release" P16L8: change "is" to "are" in "contributions from any party is reviewed" P16L25: change "one which has" to "ones which have" P17L34: change "interrogating" to "determining". Comma after "poorly" P18L4: provide reference for "ABC" P18L6: commas around "with associated uncertainty" P18L17: change to "development of the OCW dataset processor" - add "the"

References error with references: "<GotoISI>" (undefined in LaTeX maybe?) please check all references

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