



EGUsphere, author comment AC2
<https://doi.org/10.5194/egusphere-2022-719-AC2>, 2022
© Author(s) 2022. This work is distributed under
the Creative Commons Attribution 4.0 License.

Reply on CEC2

Jagat S. H. Bisht et al.

Author comment on "Estimation of CH₄ emission based on an advanced 4D-LETKF assimilation system" by Jagat S. H. Bisht et al., EGU sphere,
<https://doi.org/10.5194/egusphere-2022-719-AC2>, 2022

Dear Honourable Chief Editor,

First for the delay in my reply: I was on vacation immediately after submission of the manuscript. It is my first visit to my home in India since the Covid-19 outbreak. I have tried to work on the code submission to Zenodo as the first thing after returning. We appreciate your immediate attention to our submission. Apologies for slower responses on our side.

Secondly, I have only developed the LETKF code for this work as a part of my post-doctoral research. This is a stand-alone code and any ACTM can be plugged into this code to perform CH₄ data assimilation. We are also keeping the CH₄ model simulation module in MIROC in our Zenodo account (<https://zenodo.org/record/7079139>; this contains only the CH₄ simulation module not whole MIROC package), so that all components of CH₄ simulations can be publicly available. The MIROC version 4 is coupled with our CH₄ simulation module to perform simulations. The whole MIROC package couldn't be publicly or with restrictions made available due to copyright policy of the MIROC community as we mentioned in our manuscript.

Thus we are able to obey the GMD code and data policy:

Core Principle #2: "... In particular, authors must make every effort to publish any code whose development is described in the manuscript."

Following this we are happy to publicly archive the LETKF code (<https://zenodo.org/record/7079167>). Please note that the restricted access is now removed. In addition, all the scripts for running the assimilation code, input files and output file are also made available (<https://zenodo.org/record/7098323>) on Zenodo. We also provided a LETKF data assimilation user guide (LETKF_DA_GUIDE) in our zenodo account which describes how to prepare and run LETKF data assimilation experiments mentioned in our manuscript.

We also discussed with our colleagues who are using MIROC and associated research and development codes, and checked their recent publications. We were encouraged to submit our manuscript because such a code sharing policy in the most recent papers has been accepted. An example from the year 2022 is given.

<https://gmd.copernicus.org/articles/15/5627/2022/gmd-15-5627-2022.html>