

Review ESSD-2019-36, global land O₂ flux

Possibly a useful topic for ESSD, to provide an alternative look at human emissions. But manuscript as submitted not at all up to standards expected by ESSD for useful global data sets. It seems the clear that the authors modified this manuscript from a prior research article. But the manuscript itself has not achieved successful transition from research article to data description.

O₂ data in the manuscript lack any indication of uncertainty. All numbers and graphs presented as exact. Impossible. Read the ESSD guidance on presenting and discussing uncertainties. I hypothesize (and authors can prove me wrong) that uncertainties for human and livestock respiration (e.g. Figure 9) exceed the values as given.

Data set presented without validation. None! Again, please read ESSD guidelines on validation. Difficult here perhaps, but not impossible? By stoichiometry from the carbon budget (these authors attempt that but fail to apply such calculations as independent validation), but comparisons with other <population/energy/emissions> data bases could help. What about recent (e.g. lake, coastal) sediments with high deposition / time resolution? Oxygen isotopes could help? Authors must show that they have made best efforts on validation.

I read the global fire emission data differently than these authors, both for spatial and temporal patterns. These authors could prove the validity of their own calculations, but they give us no useful data or guidance.

A reader / user want confidence from these data, in order to use the data in their own work. The authors have given us no basis for such confidence.

Please can the authors read, carefully, these three ESSD publications:

Guidelines

<https://doi.org/10.5194/essd-10-2275-2018>

Global carbon budget (the authors cited it wrongly) for example of uncertainties, etc.)

<https://doi.org/10.5194/essd-10-2141-2018>

Global fire emissions database - the authors have not cited it correctly nor, I think, extracted valid conclusions from this data

<https://doi.org/10.5194/essd-9-697-2017>

The manuscript includes numerous technical and textual errors. I will read the manuscript again if the authors make the serious revisions suggested above. With their figures (e.g. 2a, 7b), these authors apparently aspire to emulate the global carbon budget but they have not demonstrated necessary levels of quality and reliability. If they hope to serve a global community with this data set, that community needs a much better data description.