

Geosci. Model Dev. Discuss., referee comment RC1
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Comment on gmd-2022-132

Anonymous Referee #1

Referee comment on "Global biomass burning fuel consumption and emissions at 500 m spatial resolution based on the Global Fire Emissions Database (GFED)" by Dave van Wees et al., Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2022-132-RC1>, 2022

Review of "Global biomass burning fuel consumption and emissions at 500-m spatial resolution based on the Global Fire Emissions Database (GFED)"

Submitted to *Geoscientific Model Development*

General Comments

The GFED fire emission inventory is used extensively across a range of environmental disciplines. I expect this 500m dataset will find immediate use among earth system scientists, particularly for applications where the 0.25km spatial resolution of the base GFED database has previously presented challenges, e.g. application for regional scale chemical transport modeling.

In my view this paper is thorough and well-written. I have no substantive comments, other than a handful of very minor suggestions (see below).

Line-by-line

Abstract line 22. I think the abbreviation "(SOC)" after "soil organic carbon" is missing here, given the reference several lines below.

Line 46. Do the FRP approaches really bypass the biogeochemical dependencies? Or is it more accurate to say that they avoid the computational burden of having to calculate these relationships online? My understanding was that the FRP based estimates still implicitly rely on an understanding of the biogeochemistry in order to parameterize the emissions per detection, e.g. the GFAS inventory relying on relationships calculated in GFED. But perhaps my thinking is incorrect.

Line 139. I believe this is the first mention of soil organic carbon in the main text, please move the abbreviation "(SOC)" up to match.