

Interactive comment on “Global fire emissions estimates during 1997–2015” by Guido R. van der Werf et al.

Anonymous Referee #1

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This paper describes the latest version of the Global Fire Emissions Database (GFED). This version, version 4/4s, includes significant updates from GFED3, including updates in the burned area estimates, new fuel consumption parameterizations, more recent input datasets to drive the base calculations of the biogeochemical model that underlies the emissions model, improvements in the way in which small fires are processed, and updated emission factors. The new model updates and results are described in detail and compared to GFED3. While it remains a challenge to prove that these model updates are indeed improvements, as discussed thoughtfully in Section 5, the model updates include significant changes that should be expected to improve emission estimates. The GFED emission estimates are widely used across the climate and atmospheric chemistry communities, and this new version will be very valuable. This manuscript is well-written; the model updates, resulting emission estimates, com-

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parison to past model versions, and discussion of the uncertainties are thorough and clearly stated.

I recommend that this paper be published. I only have minor comments that I provide here.

A link to a file that includes the updated emission factors is provided; however, it would be useful to include this information in the manuscript (A table would be a useful addition).

Section 4.3 (Page 13, lines 16-22): this section is talking about comparisons of measurements with GFED4 and GFED3 modeled fuel consumptions. It is often unclear which is being compared. For example, line 16 states: Fuel consumption in Savannas and other regions with herbaceous fuels is lower in GFED4. . . lower than measure values? Lower than GFED3? (the next sentence states that it is lower than GFED3 estimates). I just suggest more clearly defining what you are comparing in this section.

Editorial comments: When “which” is used, a comma should precede it. For example, on page 13, line 30-31 Page 14, line 6: I don’t think it’s necessary to comment that the “C” emissions are now reported in emissions of CO₂. This is confusing.

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