

I thank the first referee for their thoughtful and specific comments on the manuscript. Point by point responses with line numbers are listed below.

Anonymous Referee #1

The manuscript entitled “Evaluation of Global Fire Weather Database reanalysis and short-term forecast products” compares the FWI computed from MERRA2 reanalysis to global weather stations and evaluates the skill of FWI forecasts from NASA GEOS-5 weather forecasts up to 8 days lead time. The assessment of FWI bias concerning weather stations follows upon previous works at a regional scale and a recent global comparison with another reanalysis (ERA-Interim). The evaluation of FWI short-term forecast skill is the first at a global level, providing new insights. The manuscript read well and the overall presentation quality (structure, figures, tables, etc) is good, while the results are well described and discussed in some depth regarding several related works. As such, I believe the manuscript can be accepted with relatively minor changes as it presents a relevant contribution that is of interest to the wider fire community.

While the processing of the weather station data is thoughtfully described, the description of the datasets should be made more straightforward. The title of the manuscript refers to the evaluation of GFWED but, through the text, the GFWED is sporadically mentioned, being the FWI data referred to as MERRA2 FWI or GEOS-5 FWI. I am afraid this may lead to some confusion, and I suggest starting the Data and Methods section with a brief description of MERRA2, GEOS-5 and GFWED.

L66: I have added more details on the different versions of GFWED currently available, I hope clarifying the differences between MERRA2 and GEOS-5 under the broader GFWED ‘umbrella’. For completeness, I have also mentioned the satellite precipitation-based products, but because they are not included in the analysis, have left this whole description in the Introduction, rather than Data and Methods.

Also, in the Data and Methods section, it is not clear what reference data is used to evaluate FWI forecast skill.

L158: I have described here how the forecast FWI is evaluated against the analysis (0-day lead time). In theory, the forecasts could be compared to FWI calculated from weather stations, but the weather station coverage was simply too poor in many areas.

Additionally, there are several references in the Introduction that are missing in the references section (e.g., references at P1 L37/38).

Thank you for catching these. The Dowdy et al. (2009), Van Wagner (1987) and Cantin (2016) references have been added to the bibliography.

Finally, I believe the manuscript would benefit from a conclusion section summarizing the main results. In the current form, the ending feels unexpected as if something is missing.

Thanks for the suggestion. I have added a Conclusions section.

Specific comments P1 L21 – it should be made clear that FWI consists of three moisture codes and three fire behavior indices before describing the two groups individually; I suggest moving the description FWI inputs (P1 L40-41) to before the description of each FWI component;

L20: A description of the overall moisture codes and fire behavior indices has been added, and the FWI input description has been moved to the end of this paragraph.

P8 L277 - section 4 “GEOS-5 FWI forecast evaluation for 2018” should be a subsection of results (section 3).

Thank you for pointing this out. This now a subsection of the Results, the other sections in which have been re-numbered and renamed accordingly.

Technical corrections

P1 L9: “NASA he Modern-Era” should read “NASA Modern-Era;

Thank you for catching this, it has been corrected.

P1 L24: “from” should precede “temperature”;

Thank you for catching this, it has been corrected.

P1 L31: “mm” is missing after “2.8”.

Thank you for catching this, it has been corrected.

P6 L200: “FIRESEAON” should read “FIRESEASON” (the same typo appears several times throughout the text).

Thank you again for catching these, they have been corrected.