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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Satellite Hydrology Observations as Operational Indicators of Forecasted Fire Danger across the Contiguous United States" *by* Alireza Farahmand et al.

Matin Rahnamay Naeini

rahnamam@uci.edu

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The manuscript "Satellite Hydrology Observations as Operational Indicators of Forecasted Fire Danger across the Contiguous United States" by Farahmand et al. investigates the potential for employing remotely sensed hydrologic observations for predicting burned area. The manuscript specifically proposes a monthly burned area model, which employs soil moisture data and vapor pressure deficit with different lag time. The manuscript is very interesting to read and well written. I have a few minor comments as follows:
Minor Comments:

- Please clarify the output of the proposed model in the abstract. Although improvement in predicting the wildfire burned area is discussed in the abstract, the goal of the modeling framework is not clear. Please be more specific about the burned area model in the abstract.
- In section 2.1, three datasets are presented. However, in line 89, the authors mentioned that four datasets are used as input. The numbering in this section can cause confusion.
- Please specify the spatial resolution of the soil moisture data in section 2.1.
- Since monthly VPD is in 0.5-degree spatial resolution, please clarify the downscaling method or cite related references. It is not clear to me how linear interpolation is employed for this purpose.
- The lagged VPC-SSM combination for each GACC is selected according to a Weighted Nash-Sutcliffe efficiency (NSE). I think the approach needs to be further clarified in the methodology section. In line 127, the authors mentioned "lagged model", which can cause confusion. Are the authors referring to models with lagged input as the "lagged model"?
- Following my previous comment, why the combination selection is performed according to the weighted NSE for all months, and each month is not considered separately for selection? This way, each month and each GACC will have a different variable combination.

Technical Comments:
- Please define acronyms USFS in line 36.
- Figure 2, 3, and 4, please align the axis labels.
- Figure 2, Is the orange line the NSE value for the best model?
- Please number the equations.
- Figure 3, please label each subplot and specify which subplot is for which GACC.
- Line 279, I didn't find Table 2.

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