

A review of “A Global Forest Burn Severity Dataset from Landsat Imagery” by He et al. This manuscript attempts to develop a global forest burn severity (GFBS) database by combining Fire Atlas product, MODIS land cover data product, and the Landsat reflectance product. Results were validated over CONUS using the MODIS global burn severity dataset (MOSEV). Overall, the technical description seems technically sound and, in most cases, is well-written. The experiment is designed for global, thus the influence of the dataset will be important. The results are reasonable, some issues need further clarification.

General questions:

Q1: Need further validations across the world, because the current version includes no validations outside CONUS. At least should done for Australia and North Russia where server burns have been reported.

Q2: What’s the resolution of your data product is not clearly described in the abstract. It should be the strength of the developed GFBS database.

Q3: What’s the spatial resolution of the CONUS-wide Composite Burn Index? If CBI plots are at 30m diameters, they should be more consistent with Landsat-derived burn servility.

Q4: When describing correlation, suggest using r , not R^2 .

e.g. “... dNBR of GFBS was more strongly correlated with CBI ($R^2 = 0.4$) than dNBR of MOSEV ($R^2 = 0.08$) ...”

Q5: Is the method used in this study limited to the combustion areas already discovered by MODIS at 250m scale? If that's the case, it may miss many visible combustions on the Landsat scale (30m).

Figure 1: Why “Forest fire” in “I. Data input” was not linked to items in other sections?

Specific comments:

The definition of “burn severity” is not clear, e.g.,

L13: “... amounts of biomass”

L44: “... degree of biomass”

L49: Did you solve this issue?

“... the use of inadequate sampling data to construct the plot level prediction models”

L172: What’s the reason for underestimation and overestimation?

L263: “We based GFBS on Landsat (5, 7, and 8) images ...” please rewrite to read.

