The study developed a global 30-m resolution forest burn severity database. Unlike most previous studies that focused on fire occurrence, this data is about the severity of fire disturbance, which is evaluated by the amounts of biomass that were consumed by fire. Although the method is quite simple and not very innovative, it is an impressive work to produce 30 m resolution data products at the global scale between 2003 and 2016. That's why I think the data is valuable. However, some problems also exist.

Major comments:

1) Can you compare your product with the Canadian Landsat Burn Severity (CanLaBS) product which is also produced using 30 m resolution Landsat images? Does your method have any advantage over CanLaBS product?

2) Fig. 5 & Fig. 7: I think the number of data points in these figures is far from enough for you to conclude that your product is better than MOSEV. For example, in subfigure (b), there is only one low CBI value and one high CBI value. More data is needed for validation. Or, you can try other data sources such as statistical data to validate your data.

3) In the discussion part, we suggest you to discuss on whether the incorporation of L-band SAR data (e.g., LSAR-2 ScanSAR Level 2.2 product) can facilitate the retrieval of forest biomass before and after the fire.

4) Will the difference between band settings in Landsat-8 and Landsat5-7 induce temporal discontinuity in the burn severity product? Have you checked whether this product is suitable for long-term temporal analysis (e.g., the trend of burn severity). It's quite important information for users of this product.

5) You should stress the usefulness of this product, for example, by pointing out some potential applications.

Minor comments:

1) Line 96-98: These sentences should be removed, as Lines 99~106 are already the abstract of the method, which is simple enough for readers to understand.

2) Line 101: You should point out why NBR can reflect the biomass before or after the burn. References are also needed here.

3) Line 133: It would be better if you can explain why the denominator is the square root the NBR before burn, rather than the NBR before burn.

4) Line 136: I recommend you to mention how CBI is measured.

5) Line 144: I recommend to change the title into: forest fire coverage of Landsat composites.

6) Line 161-164: I recommend to move these sentences, including the figure, to section 2.4.

7) Line 169 and afterwards: Do you think it's better to move the comparisons with MOSEV to the Discussion part?

8) Lines 166-184: You should change your expression. As your product is not always and absolutely more correct, you should not say "MOSEV overestimate or underestimate ..." so confidently. You could add "might", for example.

9) I think Fig. 8 appears more convincing than Fig. 5 and Fig. 7. At least the amount of in-situ data is adequate.

10) Lines 238~245: What are the potential explanations to these differences?

11) Line 253: How can the spatial pattern comparison lead to the conclusion that your product has

improved accuracy than MOSEV? More explanations and proofs are needed.

12) Line 259~261: You should provide more proof, such as references, to conclude that MOSEV has truly over/under-estimated the burn severity in these regions, which your product has avoided.

13) You should pay attention to the writing. For example, in Line 298, "$CO_2$". Please check and correct such errors.