

Earth Syst. Sci. Data Discuss., referee comment RC1
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Comment on **essd-2022-27**

Anonymous Referee #1

Referee comment on "The Fengyun-3D (FY-3D) global active fire product: principle, methodology and validation" by Jie Chen et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2022-27-RC1>, 2022

It is well known that the quality of commonly used AQUA MODIS global fire products inevitably decrease gradually after a long-term running. It is very glad to see that Chen et al. made a robust global fire products with similar spatiotemporal resolution to AQUA MODIS products, which guarantees the continuity of research based on MODIS data. Overall, this manuscript is well-structured and presents sufficient details. The verification of FY-3D fire product was conducted from different perspectives. The figures were presented with good quality. Nevertheless, the following several technique issues can be considered by the authors before I recommend its final acceptance for publication in ESSD:

1 What is the major difference between the algorithm of fire identification for FY-3D and MODIS fire products? Although briefly introduced, more detailed explanation should be added. This can give readers and users a better picture of the quality and advantage of FY-3D fire products.

2 There is a difference of observation time between FY-3D and MODIS fire products. Will this cause potential errors when employing both FY-3D and MODIS products? e.g. the first part of time series based on MODIS product and the latter part based on FY-3D products?

3 There are two middle-infrared band (3.8 μ m and 4.05 μ m). What is the difference between the two bands? And what is major advantage (e.g. detecting specific fires?) for the two bands? What is the band used for FY-3D fire products?

4 The position accuracy for FY-3D and MODIS fire products were both 0.01°. Why the range for matching them was set as 0.02°?

5. On page 16, the equation for position matching suggested $0.03i$, why in the text was $0.02i$? Is it a typo or something to explain?

6. Page 1 Line 36: Wild fires can significantly affected the formation of cloud and precipitation, which can be mentioned as well. The authors can refer to the following literatures: (a) doi: 10.1029/2021GL094224; (b) doi: 10.1029/2019JD032136

7. Page 1 Line 36: Some important references can be added to better support "remarkably deteriorated air quality", such as <http://dx.doi.org/10.1080/01431161.2010.485213>