

Interactive comment on “Leveraging spatial textures, through machine learning, to identify aerosol and distinct cloud types from multispectral observations” by Willem J. Marais et al.

Yingxi Shi

yingxi.shi@nasa.gov

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The research is very interesting and important. I have some questions and comments regarding the paper.

1. What is the true positive rate and false positive rate of the ML results vs. CALIOP's results in terms of aerosols vs clouds vs clear? The test error provide a mixed information that is hard to interpret.
2. The idea of which is the best patch size captures the aerosol/cloud spatial informa-

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tion is very useful. A comparisons between 100 pixels vs 25 pixels are a beginning but not enough to proof that 25 is the best, especially when determine edges of a feature. Is there a sensitivity study to show different patch size?

3. Figure 11 and 12 are kind of confusing. I don't know if I understand it completely, because the optical depth increase not necessarily means that fraction of aerosol increased in my opinion.

4. In the paper there are very detailed descriptions of CNN package including FE and classifier. I think it is hard to separate what is your research vs. what is already built in the CNN packages. When I read the article, I have a feeling I was walked through a detailed introduction of how CNN/deep learning model works. This is maybe because the author assumes audience doesn't have any knowledge of CNN, but I felt like these amount of details make the paper overwhelming.

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