Comment on amt-2021-405

Anonymous Referee #3

Referee comment on "Identification of tropical cyclones via deep convolutional neural network based on satellite cloud images" by Biao Tong et al., Atmos. Meas. Tech. Discuss., https://doi.org/10.5194/amt-2021-405-RC3, 2022

This paper presents a research on classification of TC and non-TC pictures from satellite cloud images using the Deep convolutional neural network. Two image sets are used: the image set that covers all the Northwest Pacific Ocean basin with multi TCs, and L image set that covers small region of NWPO with single TC. The images are break out into training, validation and test sets.

Two DCNN models are trained for the two sets respectively. For the model trained with larger size images with multi TCs, the image pyramid technique is used to pre-process the images before training the model. Appropriate performance parameters are employed to evaluate the adequacy of the models. It shows that the pyramid technique improves the accuracy of the model.

The structures of the DCNN are well designed and presented in the paper. The results are well analyzed with proper discussion. The findings in this research should be valuable for further researches on this aspect, and even the models could be a useful basis for the meteorological agents to build their operational model on.

Some questions and minor suggestions:

- Line 190："Based previous tests" should be "Based on previous tests"
- Below section head 3.1.1：What does "The 10-fold cross-validation" mean? How is the "10-fold cross-validation" operated?
- In Figure 5, what is the difference for TG-1 to TG-10? Any difference in parameter setting among them? The same question for TG-1 to TG-3 in Figure 14.