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Atmospheric Measurement Techniques Discussions

Interactive comment on "Diurnal and nocturnal cloud segmentation of ASI images using enhancement fully convolutional networks" *by* Chaojun Shi et al.

Anonymous Referee #2

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General comments

This manuscript proposes a new diurnal and nocturnal automatic cloud segmentation algorithm using Enhancement Fully Convolutional Networks. It is of great significance for astronomical observations and meteorological observations. The experimental data are provided by the Key Laboratory of Optical Astronomy at the National Astronomical Observatories of CAS. And in the experiments, the proposed EFCN-8s is compared with other four algorithms (OTSU, FCN-8s, EFCN-32s, and EFCN-16s) using four evaluation metrics. The manuscript demonstrates that the EFCN-8s is much more accurate in the cloud segmentation for diurnal and nocturnal ASI images than other four algo-

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Discussion paper

rithms.

Overall, the scientific significance and quality of this paper is good. I would recommend it for publication in AMT if the authors consider the comments below in a revised version of the paper.

Specific comments

1. The development of the ground-based full-sky cloud measuring instruments described in the second paragraph of the manuscript is a bit confusing. I suggest it should be described in the order of development time of the ground-based full-sky cloud measuring instruments.

2. In the part of experiments 4.1, there is no detailed description of the second experiment in this section. I suggest the second experiment and the Figure 7 should be described in detail in this section.

3. In Table 1, there is a word “pad” in column 4. What’s the meaning of “pad”?

Technical corrections

1. P3 L27 “19:00-7:00” is not clear. Can you express it in another clear way?

2. P5 L7 “white” and “black” - that is not clear! “white pixels” and “black pixels” would be better! And it would be better to put this sentence “In Fig. 2(b) and Fig. 2(c), white indicates the cloud and black indicates the sky background.” in front of the previous sentence.

3. It may be a typo error in table 1 “imput image”, should be replaced by “input image”.

4. The last two references in the manuscript are not quoted in the paper and should be deleted.

5. P7 L13“FCN-16s, FCN-32s”is not mentioned elsewhere. Why?

6. Some grammar errors exist in this paper. Such as the first sentence in Introduction

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part. Page 3 line 15-16, both “Section” and “Sect.” are used.

7. For the compared method, what is OTSU method?

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