

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

### **Anonymous Referee #1**

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The authors have provided an interesting analysis on the segmentation of ASI images. The proposed approach is compared with other existing approaches.

Few comments:

- What is the reason for choosing the I channel in HSI color model as the selected color channel? Do the authors conclude that the I channel is the most discriminatory feature (as compared to other color models) for the purpose of cloud segmentation?
- Related works on nocturnal cloud image cloud segmentation is ignored in the related literature. Few works are already available on nighttime cloud images. For example: a) <https://www.osapublishing.org/ao/abstract.cfm?uri=ao-55-22-6040> b)

<https://ieeexplore.ieee.org/document/8296300>

- Please provide more details how the software LabelMe is used to create the ground-truth images. As clouds have a fuzzy shape, I presume it is difficult to accurately label the cloud boundaries.

- What is the motivation of using histogram equalization in the I channel of HSI model, and then converting back to RGB color space? I wonder, if this process provides a boost in the performance of the EFCN approach. In order to conclusively prove it, it is absolutely important to benchmark the performance of EFCN approach on regular RGB images (without any histogram equalization).

- Words like 'map6', 'map7', 'deconv2', 'argmax2' etc. should be referred in `\texttt{}` format, or a different font style.

- What is the accuracy of the proposed approach when the EFCN model is trained on both the daytime and nighttime images together, so that a single trained model can be used to detect cloud pixels from both nocturnal and diurnal images?

- Please check out this similar recent work: <https://arxiv.org/abs/1904.07979> . Include this discussion in the Section 1 Introduction of your manuscript, so that all related recent works are included in the literature review.

- Is the dataset of labelled cloud images with corresponding ground truth masks available to the public for further benchmarking?

- The nighttime images, in general, are more noisy in nature, as compared to the daytime images (refer to Figure 5). Can you comment on the reason for the noisy nature?

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Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2019-93, 2019.