

Reviewer #1

Review Report Form

- English language and style
- ☐ Extensive editing of English language and style required
 - ☐ Moderate English changes required
 - ☐ English language and style are fine/minor spell check required
 - ☒ I don't feel qualified to judge about the English language and style

| | Yes | Can be improved | Must be improved | Not applicable |
|--|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|
| Does the introduction provide sufficient background and include all relevant references? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is the research design appropriate? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Are the methods adequately described? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Are the results clearly presented? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Are the conclusions supported by the results? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Comments and Suggestions for Authors

I found this work very interesting and innovative because you are trying to improve traditional methods of air quality monitoring, introducing satellite information and AI algorithms. However, there are some points that can be improved:

1. There are a lot of works, which use not only CNNs, but any kind of ML algorithms on satellite imagery for monitoring. You may include more references about it in your introduction.
2. There are some assertions about ML and AI that must be referenced. I can't say where exactly because there are no number of line (I recommend you to add line numbering for future submissions), but it is at the end of the second paragraph.
3. Figures 3 and 6 have very low quality, it should be improved.
4. Experimental results are limited to **BRBES variants** and there is no comparison with **other methods**.
5. An analysis about computational load and/or **processing time** would be of high interest.

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| Are the methods adequately described? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Are the results clearly presented? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Are the conclusions supported by the results? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Comments and Suggestions for Authors

Using raw satellite images, the authors developed a combined method to predict AQI. The method is applied in Shanghai and it was shown a good results was achieved. My major concerns are as follows.

1. AQI is a quantitative measure of air pollution that is generally calculated from the primary air pollutant concentration, why the authors tried their best effort to predict a quantitative quantity. We're more interested in a prediction of quantitative quantity, for example, PM2.5 concentration.
2. I'm not sure how to derive cloud coverage and RH. It seems historical RH data are used.
3. It was stated that RH is negatively correlated to PM2.5 that is used in the model, I'm not sure what's the physical explanation to this negative relationship. My understanding is that high RH would lead to heavy pollution in most cases.
4. The manuscript looks like a technical report, not a science paper. There are so many details to persuade the readers to have a full understanding of the major finding of this study.
5. The manuscript needs further polish. As a matter of fact, it is not very easy to understanding what's the exact meaning in many cases.

Reviewer #3

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| | Yes | Can be improved | Must be improved | Not applicable |
|--|---|---|------------------------------|------------------------------|
| Does the introduction provide sufficient background and include all relevant references? | <input checked="" type="checkbox"/> (x) | <input type="checkbox"/> () | <input type="checkbox"/> () | <input type="checkbox"/> () |
| Is the research design appropriate? | <input type="checkbox"/> () | <input checked="" type="checkbox"/> (x) | <input type="checkbox"/> () | <input type="checkbox"/> () |
| Are the methods adequately described? | <input checked="" type="checkbox"/> (x) | <input type="checkbox"/> () | <input type="checkbox"/> () | <input type="checkbox"/> () |
| Are the results clearly presented? | <input type="checkbox"/> () | <input checked="" type="checkbox"/> (x) | <input type="checkbox"/> () | <input type="checkbox"/> () |
| Are the conclusions supported by the results? | <input checked="" type="checkbox"/> (x) | <input type="checkbox"/> () | <input type="checkbox"/> () | <input type="checkbox"/> () |

Comments and Suggestions for Authors

The paper presented with air quality changes with a measure of PM2.5 pollution is not described in the way to analyse the changes observed over Shanghai, except that the changes in pollution are presented through satellite images. However, i feel there is lot of scope for the improvement of current paper submitted to Remote Sensing journal. After thorough reading of the manuscript, I feel the current version of paper is not up to the mark and originality or scientific soundness to the readers. Anyhow, the paper described with the algorithms or program used in defining the pollution over the Shanghai city for few cases. Overall, I am not satisfied with the way the paper is presented here and strongly recommend the authors to improve the paper during its revision with respect to both qualitative and quantitative manner.