

## ***Interactive comment on “Understanding the Recent Trend of Haze Pollution in Eastern China: Roles of Climate Change” by H. J. Wang and H. P. Chen***

### **Anonymous Referee #1**

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In their contribution, the authors presented potential roles of climate variability and change in recent increased haze pollution events in east China. This paper could be a welcome reference in the literature.

In recent years, haze pollution has been a particularly acute issue in east China. The reasons behind recent increase of haze pollution events are complex. A number of studies have discussed this problem from human activity perspective, i.e., increased emissions into atmosphere due to urban and industrial pollution. However, little attention has been paid to this issue from climate variability and change perspective. The authors showed decadal trends in haze day in northeast and southeast China and their relationships with Arctic sea ice extent, precipitation and surface winds. The results can

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improve our understanding of physical processes that influence haze variability in east China. Below I list some points, which the authors need to address.

1. Page 4/ Line9: Better outline the two regions (R1 and R2) in Figure 1. How many stations are used to calculate the averaged haze day in R1 and R2, respectively? Are the haze day trends sensitive to the number of stations used?
2. Page 4/Line 10: Explanation of the definition of haze day is needed.
3. Page 4/Line 13: “sea ice extent” should be “sea ice concentration”.
4. Page 4/Line 14-16: Add “China Statistical Yearbook” in the reference list.
5. Page 5/Line 17: It seems that for R2, the variability of winter haze day becomes larger in recent years as compared to the first and second periods.
6. Page 6/Line 4: A little bit more discussion regarding the influence of Arctic sea ice loss on atmospheric circulation anomalies over east China is needed.
7. Page 6/Line 14-15: I suggest the authors add some discussion about the possible factors contributing to increased precipitation during the first and second period and decreased precipitation during the third period.
8. It is not clear how the authors define “>” and “<” signs in Figure 6? Relative to what? Please clarify.
9. Page 8/Line 15-21: I would like to suggest the authors to add more discussion about the projected changes in precipitation and surface winds over east China in near term based on recent studies, CMIP5 model projections.

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