

Interactive comment on “Response of Early Winter Haze Days in the North China Plain to Autumn Beaufort Sea Ice” by Zhicong Yin et al.

Anonymous Referee #1

Received and published: 20 November 2018

Review of “Response of early winter haze days in the North China plain to autumn Beaufort sea ice” by Yin et al. (MS: ACP-2018-783)

Summary: Yin et al. have found a high correlation (0.51) between the early winter haze days in the North China plain and the September-October sea ice in the west of the Beaufort Sea. Further analysis revealed that the sea surface temperature anomalies over the Bering Sea and Gulf of Alaska acting as a bridge that linked the variations of haze days and sea ice. This is interesting, also important for us to understand the causing of the changes of haze pollutions over China in recent years. I recommend it to be accepted by ACP after several corrections.

1. In recent years, there are increasing works referring to the impact of climate change on the haze pollution over China. The authors should present updating review on

these new papers in the introduction. 2. Line 46: The reference here is not found in the reference list. “2017” may be “2016”? 3. Some information for the site observation should be clear. For example, how many meteorological sites used here? as well as the number of monitoring sites for PM_{2.5}. How to deal with the missing values. 4. The definition of the haze pollution should be clear. 5. Line 84-85: This expression here is not correct. Here, just the number of haze days is highlighted, not the synoptic process. 6. Line 90-92: The linear trend here has been deleted or not? It should be clear here as well as in the figure caption. 7. Line 105: the “heavy” used here is not correct, as well as in the other places throughout MS. 8. As we all know, the wind is one of key factor that exerts impact on the haze pollution. Compared to the zonal wind, the meridional wind generally performs a greater role on the particulate dissipation. So, the influence of the sea ice on the meridional wind should be checked. 9. What about the relationship between the local wind speed and Beaufort Sea ice/SST anomalies over the Bering Sea and Gulf of Alaska? 10. The English writing should be further improved.

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2018-783>, 2018.

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Discussion paper

