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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Identification of Atmospheric Transport and Dispersion of Asian Dust Storms" *by* Raegyung Ha et al.

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This manuscript covers the important topic of Asian dust storms (ADS) with good illustrations of the results. The main problem with the study is lack of details.

First, the backward trajectory of each dust storm was calculated using HYSPLIT. But there is no description of HYSPLIT and its advantages and disadvantages, except for a short sentence on P. 2. Many readers of NHESS are probably not familiar with HYSPLIT, a free downloadable model from the NOAA website, and will appreciate having some background information on the model.

Second, the study mentions that the trajectories of air transport at altitudes of 1000, 1500, and 2000 m were traced and shows the trajectories in Fig. 1b. But after Fig. 1b, there is no more mention of these different altitudes. Are they involved in subsequent analysis?

Third, in the Introduction, the authors explain that ADS contain "surficial minerals of natural origin (e.g., weathered soils) as well as pollutants of anthropogenic origin such as black carbon, heavy metals, and sulfates." But in the Discussion, the authors seem to identify the desertification of the Gobi and Taklamakan deserts as the main cause of the recent increase of ADS. Can pollutants of anthropogenic origin, such as from coal burning and industrial plants, be another reason for the increase?

Finally, the Discussion concentrates on the results from the four stations in South Korea. Are there studies from other countries such as Japan and Taiwan to support the findings of the study on the recent increase and seasonality of ADS?

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