

Interactive comment on “Patterns and trends of high-impact weathers in China during 1959–2014” by J. Shi et al.

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Dear Referee, Thank you for your pertinent comments and valuable suggestions. Your first concern about the missing values filled in western China and Inner Mongolia is important and very valuable. In the manuscript, the missing values were filled in by weather phenomenon data of the neighboring stations through the simple linear regression method or by the climatological standard normals, 1981–2010 of the station with missing data. For a given station, the surrounding observatories which are close to the station with missing data (less than 100 kilometers, according to the Regulations for the protection of meteorological facilities and meteorological conditions, CMA) and the Pearson correlation coefficient with $P < 0.01$ are considered as reference se-

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ries. Actually, for most stations, the missing values were filled in by the climatological standard normals, 1981–2010 of the station itself. In Xinjiang, Tibet, Qinghai and Inner Mongolia, meteorological stations are sparse. In view of the local-scale extent of HIWs and far spatial distance between stations, the missing values were filled all by the climatological standard normals, 1981–2010 of the station itself. Due to the vast territory and complicated terrain in China, there are several climatic zones across China from north to south and from east to west. As your comments, it is not suitable to use a single trend value to reflect the overall change of each type of high-impact weathers in the entire China. So maybe we should analyze the temporal characteristics of high-impact weathers according to the different climatic zones, and readers can judge the representative of the variation and trend according to the spatial distribution of meteorological stations in each climatic zone, or as your suggestion, we delete the section 3.1 and section 3.3, and enrich the content of sections 3.2.2 and 3.4.2. For the Figures 5 and 9, we accept your suggestions. Areas with significant trends will be highlighted while areas with non-significant trends will not be colored at all. For Figure 8, the term spell is indeed more appropriate than process to describe the consecutive events of weather phenomena. Process focuses more on the influence of weather systems. We will use the term spell to define the weather or climate events which lasted for no less than 3 days and further present the percentage of long events (the number of days for all spells) out of their total number for each phenomenon to highlight the spatial variability of these phenomena in future revisions. We will revise the definitions of HIWs to make them more detailed and specific, and rephrase the definition of spell of weather to make it more clearly. Thank you again!

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