

Interactive comment on “A Multi-Scale Daily SPEI Dataset for Drought Monitoring at Observation Stations over the Mainland China from 1961 to 2018” by Qianfeng Wang et al.

Anonymous Referee #2

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This manuscript demonstrated an interesting large spatial and temporal scale study by introducing the SPEI index and generating a daily SPEI dataset to assess and monitor the drought condition in Mainland China. This is one of the pioneering studies as far as I know that generated the long-term daily SPEI index at a national scale to monitor and assess drought conditions. The daily dataset can be broadly applied in many areas such as identify the flash drought and the long drought, evaluate the impact of drought on terrestrial/aquatic ecosystems, water resources, agricultural production, and social development. Therefore, my recommendation to this manuscript is to accept with minor revision. Please see below for detailed comments: Title: 1. please consider change “over the Mainland China” to “across Mainland China”. Highlights: 1. “The SPEI has

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been widely used to monitor and assess the drought characteristics" is considered as common knowledge. It is recommended to remove this from highlights. 2. "The daily SPEI dataset can identify..." to "The daily SPEI dataset can be used to identify..." 3. "The daily SPEI dataset developed is free, open and persistent publicly available from this study" to "The daily SPEI dataset developed in this study is free, open and publicly available" Abstract: Line 46: "..can monitor.." please consider using "can be used to..". Please consider making corrections accordingly for the rest of the manuscript. Line 63: do you mean "spatial-temporal scale"?

Introduction: 1. It is suggested to introduce the calculation methods of PET and SPEI and the application of these indices. 2. Line 68: please consider change "on the ecological system" to "to the ecosystems...". 3. Line 113: please consider change "delineate drought spatial-temporal evolution" to "delineate the spatial-temporal evolution of drought..." 4. Line 120L please consider change "leading to" to "could lead to"; "influences" to "consequences". 5. Line 140: please consider change "has the potential to be sued.." to "potentially can be used to.." 6. Line 141: please specify "different sectors" Data sources and methods: 1. Line 144: do you mean "1961"? 2. Line 148: "we selected 427 stations data", please rephrase the sentence. 3. Line 208-209: please rephrase the sentence. 4. Figure. 3, 4, 5, it is suggested to use high contrasting colors for different ATDS/ATDD/ATDF types. Discussion: 1. Line 363: do you mean the approach/method or the dataset itself can be validated in other regions of the world? 2. Delete "Our daily SPEI dataset not only have the 369 capability of monitoring and assessing droughts" as you described this in the previous sentence.

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