

## ***Interactive comment on “Relating historical vegetation cover to aridity index patterns in the greater desert region of northern China: Implications to planned and existing restoration projects” by Yanying Shao et al.***

### **Anonymous Referee #1**

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Comment The paper addressed relevant scientific questions within the scope of BG. Based on long-term meteorological records, this research work analyzed the impact of climate change on the trends in aridity (aridity index), and vegetation cover (satellite-based NDVI) in the greater desert belt of N China. Trend analysis indicated that the overall environmental conditions were improved in the western desert and declined in the eastern China. The cause-and-effect relationship analysis indicated that aridity controls the majority of change in vegetation cover at the 8-km spatial resolution of this study. This information is useful for re-vegetation projects in this area. This finding is novel.

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Suggestion From the aridity index trend (Fig. 5), the west was getting wetter and the east was getting drier. From NDVI trend (Fig 7), the vegetation had the improving trend in the west, but there are some scattered red regions, which denote the vegetation was declined in these places. The discrepancy between climate becoming wetter and vegetation decline in these local areas could be caused by revegetation programs, which over exploited ground water and cause natural vegetation nearby declined. If this is true, it will support the recommendation of the paper that more information, such as tolerance of vegetation cover in an environment of increasing demand for water by residential, agricultural, and industrial sectors, be obtained to ensure socio-economic and ecological sustainability of dryland systems. I would suggest the authors discuss it in the manuscript.

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