

Based on the proper nonparametric statistical methods of Mann-Kendall testing and trend analysis method, the manuscript authored by Han et al. investigates the changes of vegetation coverage and its sensitivity to climatic factors in Irtysh River basin. Overall, the results are good and reasonable, and the topic is interesting for the journal's readership. However, in my opinion some issues should be addressed and improved before the manuscript can be published.

The main comments are as follows:

1. Line 24: The resolution of the MODIS NDVI is $250\text{m} \times 250\text{m}$, but this resolution cannot be defined as the high resolution in remote sensing science. The full name of MODIS (Moderate-resolution Imaging Spectroradiometer, abbreviated as MODIS) already stated that it is a moderate resolution.
2. Please give the full name of EVI and TVDI at the first appearance.
3. Lines 87-90: The relationship between NDVI and vegetation abundance is only linear for a relatively small range of values. Significant soil effects are presented at low NDVI values, and saturation effects are evident at moderate to high values. For instance, see:
<https://doi.org/10.1016/j.jhydrol.2020.125905>
[https://doi.org/10.1016/0034-4257\(88\)90106-X](https://doi.org/10.1016/0034-4257(88)90106-X)
Thus, whether the NDVI limitations will affect the results of the study or not?
4. Line 131: The limitation of the annual maximum NDVI should be more carefully discussed since it could be affected by climate extreme events. For instance, a rainfed grassland could have extremely high NDVI for a short period under an extreme event.
5. Line 162: The trend test method in this study is called as "Kendall slope". Please confirm whether this statement is accurate. Also, please provide a reference about "Kendall slope".
6. Line 172: Since authors have emphasized that the variables are different from Seddon et al., 2016, I think the authors should explain the advantages of the factors in this study compared with that from the Seddon et al., 2016.
7. There are many formatting errors in references. For example: Lines 41-45、Line 63、Line 74、Line 172、Line 240、Line 292、Line 290、Line 310、Line 351 etc...
8. Line 230: Therefor >> Therefore
9. There are many minor spelling errors. For example, the 'R2' should change to 'R²' (Lines 260- 263).

In summary, I think that the author should redo the analysis after improving the method, and therefore would like to recommend this paper to be accepted after major revision.