

Clim. Past Discuss., author comment AC8
<https://doi.org/10.5194/cp-2021-5-AC8>, 2021
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Reply on RC5

Michael Kempf

Author comment on "Monitoring landcover change and desertification processes in northern China and Mongolia using historical written sources and modern vegetation indices" by Michael Kempf, Clim. Past Discuss., <https://doi.org/10.5194/cp-2021-5-AC8>, 2021

Many thanks!

In the mean time, I will attach to this reply two new figures, which will replace the figures 2,8,9,10 in the previous MS.

the new captions are as follows:

Figure 2 (instead of previous Fig. 2)

Figure 2: Multiannual average monthly total precipitation (A), (B) and Tmax (E), (F) in China and Mongolia over the period 2000 - 2018 based on the CRU TS4.03 (Climatic Research Unit Time Series) high resolution gridded data of month-by-month variation from I. C. Harris and P. D. Jones (University Of East Anglia Climatic Research Unit (CRU) et al. 2019), last accessed 05 of January 2021 via http://data.ceda.ac.uk/badc/cru/data/cru_ts/cru_ts_4.03/data/pre. A set of 1000 random points, which were generated over a 20 km range of the reconstructed route from 1688 show the temporal increase of monthly average precipitation totals (C) and Tmax (D) between 2000 and 2018. Data filtered with a locally estimated scatterplot smoother (Cleveland 1979).

Figure 8 (replaces Fig. 8,9,10):

Figure 8: Spatio-temporal relationships between vegetation growth behaviour, precipitation development, and temporal variability of maximum Temperature from 2000 to 2018 in the study area. (A) multiannual average monthly NDVI values in China and Mongolia over the period 2000 to 2018 and (B) study area transect with the reconstructed and buffered route from 1688. (C) Time series of the average monthly NDVI values from 1000 random point distribution within the reconstructed 20 km sector show increasing physical plant conditions. (D) Temperature and precipitation trends are positively correlated with the increasing trend in physical plant condition in the transition zone between China's Inner Mongolia Autonomous Region and Mongolia over the total 2000-2018 period and over the growing period (MAM) 2000-2018 (Didan 2015; University Of East Anglia Climatic Research Unit (CRU) et al. 2019).

With this reply, I would also like to show that I reconsidered my answer to reviewer 1 and his comment regarding the figures. I am sure that the revised version of Fig. 2 provides more substantial information and Fig. 8 is sufficient to replace the previous results of Fig. 8-10. Both are based on new datasets and analyses.

Please also note the supplement to this comment:

<https://cp.copernicus.org/preprints/cp-2021-5/cp-2021-5-AC8-supplement.zip>