

EGU2020-21006, updated on 27 Oct 2021  
<https://doi.org/10.5194/egusphere-egu2020-21006>  
EGU General Assembly 2020  
© Author(s) 2021. This work is distributed under  
the Creative Commons Attribution 4.0 License.



## **Spatiotemporal analysis of extreme temperature and humidity in the Mississippi River Basin, USA**

Ameneh Tavakol and **Vahid Rahmani**

Kansas State University, Biological and Agricultural Engineering, United States of America (vrahmani@ksu.edu)

Impacts of climate change on water resources will rise from the co-occurrence of extreme hot and humid conditions. In this study, changes in the daytime and nighttime hot and humid conditions were analyzed in the Mississippi River Basin, USA covering large semi-arid regions. Results indicated that humid nights and days have increased over 1948-2017 in at least 93% of the basin. Concurrent hot and humid events were increased during both nights and days with more significant trends for nighttime events. A change-point analysis was completed and more significant upward trends were observed after the 1980s and 1990s for extreme temperature, humidity, and hot-humid events. Results suggested a higher risk of receiving extreme hot and humid conditions for the central and southern Mississippi River Basin. The findings can help improve water resources management and allocation in the semi-arid regions of the watershed where access to surface water resources is limited.