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Trends of hydroclimate variables in the upper Huai river basinAbel Girma¹, Denguha Yan² and Dadim Fikir³¹Donghua University, China²China Institute of Water Resources and Hydropower Research, China³University of Padova, Italy

The present study attempted to investigate the trends of mean annual temperature, precipitation, and streamflow changes to determine their relationships in the upper Huai river basin. The Mann-Kendall (MK), Sen's slope test estimator and Innovative trend detection (ITA) methods were used to detect the trends. According to the finding average annual precipitation shows a descending trend in Xiangcheng ($\phi=-0.33$), Zhumadian ($\phi=-0.60$), Gushi ($\phi=0.35$), Xinyang ($\phi=-0.32$), and Xichong ($\phi=-0.11$) stations. An increasing trend was found only in Fuyang station ($\phi=1.02$). In all stations, the trends of mean annual temperature in Xiangcheng ($\phi=0.30$), Zhumadian ($\phi=0.45$), Gushi ($\phi=0.45$), Fuyang ($\phi=0.36$), Xinyang ($\phi=0.38$) and Xichong ($\phi=0.45$) was abruptly increased. During the past 56 years, the mean air temperature has considerably increased by 1.2°C. The river streamflow showed a dramatic declining trend in all stations for the duration of the study period (1960-2016) ($\phi=-4.29$). The climate variability in the study region affects the quantity of the streamflow. The outcomes of this study could create awareness for the policymakers and scientific community about the hydro-climatic evolutions across the study basin and become an inordinate resource for advanced scientific researches.

Recent Publications:

1. Abiyu, A., Yan, D., Girma, A., Song, X., & Wang, H. (2018). Wastewater treatment potential of *Moringa stenopetala* over *Moringa olifera* as a natural coagulant, antimicrobial agent and heavy metal removals. *Cogent Environmental Science*, 4(1), 1433507.
 2. Yang, C., Girma, A., Lei, T., Liu, Y., & Ma, C. (2016). Study on simultaneous adsorption of Zn(II) and methylene blue on waste-derived activated carbon for efficient applications in wastewater treatment. *Cogent Environmental Science*, 2(1), 1151983.
 3. YAN D., XU T., GIRMA A. Regional Correlation between Precipitation and Vegetation in the Huang-Huai-Hai River Basin, China. *Water*, 9 (8), 557, 2017.
 4. Gedefaw, M.; Yan, D.; Wang, H.; Qin, T.; Girma, A.; Abiyu, A.; Batsuren, D. Innovative Trend Analysis of Annual and Seasonal Rainfall Variability in Amhara Regional State, Ethiopia. *Atmosphere* 2018, 9, 326.
 5. Dorjsuren, B.; Yan, D.; Wang, H.; Chonokhuu, S.; Enkhbold, A.; Yiran, X.; Girma, A.; Gedefaw, M.; Abiyu, A. Observed Trends of Climate and River Discharge in Mongolia's Selenga Sub-Basin of the Lake Baikal Basin. *Water* 2018, 10, 1436.
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Biography

Abel Girma is a PhD candidate since 2015 at the College of Environmental Science and Engineering, Donghua University, Shanghai. Abel holds his MSc degree in Environmental Science from Addis Abeba University Ethiopia, in the year 2013 and a BSc degree in Plant Science from Arbaminch University Ethiopia, in the year 2010. Abel has been splendor and highest scorer alumna out of all graduates of Plant Science departments, distinguished from student peers with a track record of superior academic results. Arbaminch University acknowledged and praised me a medal for my very great distinction performance. Abel's research interest is related to climate change and water resource allocation with low carbon mode. Abel has a total of 12 publications (7 Sci papers).

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