

GC8-Hydro-35, updated on 26 Apr 2024

<https://doi.org/10.5194/egusphere-gc8-hydro-35>

A European vision for hydrological observations and experimentation

© Author(s) 2024. This work is distributed under

the Creative Commons Attribution 4.0 License.



## A Climate Based-Projection of Future Drought in Aegean Region of Turkey

**Mir Jafar Sadegh Safari**, Mustafa Nuri Balov, and Babak Vaheddoost

Yasar University, Department of Civil Engineering, Izmir, Turkey (jafar.safari@yasar.edu.tr)

The frequency, intensity and duration of drought events are expected to increase during the coming years. Hence, the resilience against climate changes and water deficit would be of concerns to ensure agro-food and energy safety. To address this issue, the outputs of general circulation models (GCM) under various emission scenarios are used to generate two meteorological and hydrological drought indices for a number of meteorological stations scattered in three major basins namely Buyuk Menderes, Kucuk Menderes, and Gediz located in the western Turkey (the Aegean Region). The biases in the outputs of GCMs were corrected using linear scaling method with respect to the reference period (1990-2020). The results were assessed in two 30-years period as mid-time future (2041-2070) and late future (2071-2100). Afterward, the well-known standard precipitation index (SPI) together with the streamflow drought index (SDI) are determined based on the outputs of the climate scenarios for the allocated time periods. The results of the study showed a significant increase in the number and severity of the drought events by the end of the century under all emission scenarios.