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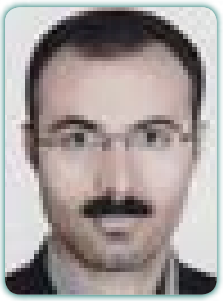

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The study of topographic changes of the middle levels of the atmosphere and its effect on the heat increase in the Middle East

The Middle East region is located in the world's dry belt is among the vast and strategic parts of the world, whose water resources, agriculture and vegetation are gradually deteriorating. Since most environmental characteristics are directly or indirectly explained in relation to topographic changes of atmospheric pressure levels (500 HPa), the study of the main causes of climate change in the Middle East region is of particular importance. For this purpose, first, the altitude data of contour 500 HPa of the atmosphere and the temperatures of January and February for the past half-century (1968-2017) for a range of studies with dimensions of 25-77.5 degrees longitude and of 10-45 degrees latitude were taken and summarized from the NCEP/NCAR. Using factor analysis and clustering, homogeneous regions were identified. The temperature trend and the significance test of its changes were performed using the Mann-Kendall statistical and graphics method. Using the correlation and multiple regressions, the equation governing the status of the process of temperature changes in each of the Middle East countries was calculated and analyzed. Eventually, Using GIS, the results of climate change were prepared and analyzed in form of illustrative maps. The results of the study showed that over the past half-century, both the western wind wave has been displaced by 2.5 degrees to higher geographic latitudes, and the frequency and the trough axis of the western winds ridge affecting the Middle East region have changed. Following these changes, isothermal lines of all Middle Eastern countries rose by 1.5 to 2.5 centigrade during the winter rainfall. From south to north-east of the region, the isothermal lines have moved from 250 to 150 kilometers to higher latitudes respectively. The most significant increase in temperature was in February, and in southern Iran, Iraq, and Syria, temperatures have risen more than other regions.

Biography

Nader Parvin has obtained his expertise in environmental studies from the Kharazmi National University in Tehran. Their research topics are related to natural disasters, especially droughts, floods, hail, severe storms, wind and solar energy in relation to the western winds of the middle atmosphere and their direct impact on environmental conditions.

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