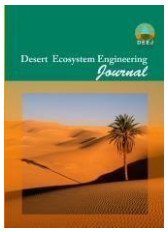
DEEJ (2017) 5 (13) 101-116

University of Kashan

Desert Ecosystem Engineering Journal

Journal homepage: http://deej.kashanu.ac.ir



# Assesment of Spatial- Temporal Changes of Precipitation in Iran

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Received: 28/6/2016 Accepted: 20/12/2016

**Abstract**

In this research, for analysis the spatial- temporal changes of precipitation in Iran, the monthly data of GPCC data base in the spatial resolution of 0.5°×0.5° during 40 years period (1974- 2013) have been used. In order to analyze the spatial character of precipitation, the mean of annual, seasonal and monthly amounts of precipitation were prepared and then by applying IDW method in GIS, 17 average maps were produced. To examine the temporal trend of precipitation, first 17 graphs were prepared using the weighted amount of precipitation and then the trend was evaluated using MannKendall nonparametric test at 0.95 level of significance. The results from this study indicated that the pixel based precipitation amount is 255.22 mm. the max of precipitation is located on the west shores of the Caspian sea and the highlands of Zagros and the min of precipitation is generally seen at the central, eastern and south-eastern extents of the country. The amount of precipitation is reduced by crossing from north, north-west and west toward central, eastern and southern regions. The winter and summer amounts of precipitation is 79.6 and 11.5 mm and these two seasons are regarded to be the wettest and driest seasons respectively. The max of winter precipitation is seen on the western shores and the peaks of Zagros Mountains while the min precipitation in this season is on the central, eastern and southern areas of the country. The analysis of monthly precipitation maps of the country revealed two temporal groups of precipitation: The months of November, December, February, March and April with the mean precipitation of 23.3 mm are considered the wettest months and the months of May, June, July, August, September and October are the driest months in the country. The examination of annual amounts of precipitation indicated a significant downward trend at 0.95 level of significance. From 1992 to 2013 it has been a decreasing trend in annual amount of precipitation in Iran. Only in winter there has been a significant downward trend and in none of the other seasons no meaningful trend was detected. The analysis of precipitation revealed no significant trend on monthly time series at the 0.95 level of significance.

**Keywords:** precipitation, spatial- temporal analysis, trend, Mann- Kendall, GPCC, Iran.

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