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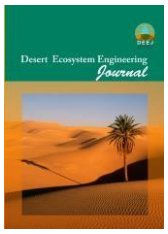

The effect of drought on vegetation using MODIS satellite Khorasan Razavi

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Abstract

One of the consequences of drought, decline water resources, reduced agricultural production, changes in vegetation and accelerate the desertification areas in the assessment of the effects of drought on vegetation is of paramount importance. In this regard, the use of remote sensing and ground data to assess the effects of drought is the most efficient known methods. In this study, The effect of drought on vegetation in Khorasan Razavi province, the meteorological data and remote sensing is used. Precipitation data from 10 synoptic stations in order to estimate the SPI, 2001, 2005, 2009, and 2013 is used. Based on images taken from satellite TERRA / MODIS 8 days monthly (May, June, July) the normalized difference vegetation index (NDVI) was calculated as the average of the three months average NDVI was used as the basis Vegetation was classified into 4 groups of the province and the area was calculated for each of the classes. Finally, two index SPI and NDVI were compared using Pearson. The results showed that the SPI in 2009 with the wet conditions and the most significant area of vegetation 0.888 Assets status wet good while 2005 has SPI 0.081 but cover about 7.1 percent of the middle class in 2009 has increased. The correlation coefficient of the two variables at a significance level of 0.000, which is equal to 90/0 represents the two variables are changed a lot. The coefficient of determination is modified by 0.78. This suggests that the independent variable in the regression equation SPI index managed, 0.78 NDVI to estimate the changes in the dependent variable. As well as the linear regression equation for a unit change in the standardized precipitation index, drought index to the changes made 024/0.

Keywords: drought, SPI, NDVI, remote sensing, Khorasan Razavi.

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