



Satellite-based assessment of NDVI variations of the Natural and man-planted vegetation under drought conditions (Case study: Jahrom City - Iran)

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Monitoring the locations and distributions of land-cover change is important for establishing links between policy decisions, regulatory actions and resulting land-use activities. The Normalized Difference Vegetation Index (NDVI) derived from the Advanced Very High Resolution Radiometer (AVHRR) has been widely used to monitor vegetation condition. Global MODIS vegetation indices are designed to provide consistent spatial and temporal comparisons of vegetation conditions. The objective of this research was to investigate the NDVI variations of Natural and man-planted vegetation in one of the agricultural region of Iran that was recently affected by severe drought. To this end, we used two kind of data. At first to better understanding the vegetation NDVI variations, we extracted the 250 m multi-temporal MODIS/Terra NDVI 16-day composite data during the growing season for the statistical period of 2000-2017. For calculating the precipitation anomalies and identifying droughts, we got the precipitation data from IRIMO for same statistical period. Initial results showed a strong negative relationship between the natural vegetation NDVI and drought conditions. Nevertheless, the relationship between the man-planted vegetation NDVI, and drought conditions has been positive. Fieldwork showed that, under the drought condition, because of the shortage of surface water flows and associated disturbance in seasonal farming, the native populations have taken action to cut the natural trees for providing their necessities. Following that, some of them have turned to using the groundwater more and more for planting the perennial plants, and consequently the ground water level was going down. Thus, decreased precipitation, caused a decline of natural vegetation NDVI and rising trend for man-planted vegetation.

Keywords: MODIS/Terra NDVI, Variations, Natural and man-planted vegetation, Drought, Water management.