



## **Drought Monitoring in I.R.Of Iran By Using NDVI from NOAA/AVHRR Data**

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In This paper we use the changes of up-to-date and normal NDVI from NOAA/AVHRR data for detecting and monitoring drought effects on agriculture. Ideally, for detecting and monitoring drought, cloud-free satellite data are required. Therefore, to minimize the cloud effect, the largest NDVI value of every pixel is used for the daily, weekly and 10-day images. However, even using this method, we found that there are too many cloudy cover areas in the daily and weekly images, which makes it difficult to detect drought effects on agriculture using these data. On the other hand, monthly data are averaged over a period that is too long to describe the development of vegetation because morphological changes and leaf appearances occur in a shorter period. Therefore, in this work, the detection and monitoring of drought effects on each 10-day interval are discussed. The standard NDVI images are created first. Then, the up-to-date NDVI is calculated just after the 10 days and cloud pixels are masked for elimination. And then, the difference NDVI images between the standard and up-to-date NDVI images are calculated. Lastly, using the difference NDVI image, it is possible to detect the area and intensity of drought damage on agriculture. The bigger negative difference pixels are listed as drought areas, and the values of difference NDVI show the intensities of the drought damages.

In this research, using the changes of up-to-date and normal NDVI from NOAA/AVHRR data, an early detection system for drought is developed. The standard NDVI images are created using NOAA/AVHRR data in 1997–99. The drought risk maps are created. The drought risk maps in I.R. of Iran in 2000 are discussed as the example. Compiling the analyses of characteristics of NDVI graph and meteoro-

logical precipitation data, the drought effects on agriculture in 2000 are detected and monitored successful. It is shown that this system is possible and useful to detect the drought area and intensity on agriculture.