Forest fire monitoring by using satellite images and information technology

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Abstract: Forest ecosystems are under the pressure of various activities such as forest fires, air pollution, illegal cuts due to agricultural purposes, mining activities, human and climatic or natural causes. Whether for these reasons or not, the forest areas are constantly changing with various farming activities of the Ministry of Forests according to country policies. It is very important to intentionally make new plans for forest areas based on the necessary prediction by monitoring the development and decline of forest ecosystem in short intervals. Satellite images are economical in terms of labor, cost and time when compared to conventional methods, which enable very large areas of forest areas to be monitored at very short intervals. A large part of Turkey is affected by the hot and arid Mediterranean climate in summer, which is why 60% of the forests in these areas are under the risk of forest fire. In 2008, most of the fires were broke out in July, and a large majority of these fires occurred due to neglect and carelessness. On July 31, 2008, fire broke out in four different locations in Manavgat, Antalya. Within the scope of this study, it was aimed to determine the destruction of fire in Antalya Manavgat by the use satellite technology and information technology. Landsat satellite images were taken before and after the fire date for the region on June 19, 2006 and June 19, 2009 then the images were classified and years of classification maps were examined and areas where the fire destroyed were identified. According to the analysis, in 2008 about 13 hectares of area were burned out. The regions were burned out in order to open the agricultural or settlement area or destroyed due to climatic conditions. At the end of the study, information technologies and satellite images were found to be highly effective in monitoring fires and to make plans for future precautionary studies.
Keywords: Forest fire, Landsat, Change detection, Information technology