USABILITY OF REMOTE SENSING SYSTEMS IN PRELİMİNARY FLOOD RİSK ASSESMENT: A CASE STUDY IN MERİÇ RİVER

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EXPERTISE THESIS ABSTRACT

Within the scope of dissertation, the benefits of remote sensing systems for flood operations have been researched. The use of remote sensing systems has been examined in some subjects such as the recording floods, formation of digital elevation models, production of bathymetry map, etc.

The use of unmanned aerial vehicles on remote sensing studies has been increased rapidly. Studies with unmanned aerial vehicles on flood have been examined within the context of dissertation. Satellite and UAV technologies have been compared in respect to keep flood records. Pros and cons of both systems have been put forward and suggestions have been made.

Within the scope of the dissertation, images of the floods occured by Meriç River have been determined. Landsat 5, Landsat 8, Sentinel 1 and Rasat satellites have been applied. Images of the Landsat, Sentinel and Rasat satellites have been downloaded from the websites "earthexplorer.usgs.gov", "scihub.copernicus.eu" and "www.gezgin.gov.tr"respectively.

The images of floods happened in March in 2006 and on 16th of February in 2010 via Landsat 5 TM Satellite and the images of the flood occurred on 2nd of February in 2015 via Landsat 8 OLI and Rasat Satellites have been taken. In order to make the flood explicit, image processing techniques have been implemented.

Radar Satellites are hardly ever affected by the bad weather conditions. Landsat 8 OLI and Sentinel 1 Satellites' images related to the flood occured on 2nd of February in 2015 have been compared. While it has been waited for 1,5 months for clear weather to view the flood via Landsat 8 OLI, every single image obtained by Sentinel 1 Satellite has monitorized flood successfully.

The flood area detection techniques have been carried out on the flood happened on 16th of february in 2010 through classic flood area detection and flood area detection with remote sensing. As a result of the application, it has been observed that detecting flood area through classic method has been caused mistakes.

Key Words: Remote Sensing, Satallite, Meriç, Flood, UAV, Rasat, Sentinel, Landsat, Preliminary Flood Risk Assesment, Flood Hazard Map