



“Gheorghe Asachi” Technical University of Iasi, Romania



MONITORING THE DAMAGE AND AIR POLLUTANTS AFTER FOREST FIRES: THE CASE STUDY OF VATERA FIRE IN LESVOS

Özer Akyürek

*Kocaeli University, Department of Remote Sensing in Geomatics, Kocaeli, Turkey
E-mail: ozer.akyurek@kocaeli.edu.tr; Phone: +90 262 303 3247; Fax: +90 262 303 3003*

Abstract

Forests are complex life forms inhabited predominantly by trees. Forest fires, which are among the most destructive natural and human causes disasters in the world, cause deterioration in ecosystems, national economies and the social life of living things. In addition, fires are a very important source of gases and aerosols that disrupt the balance in the atmosphere. GIS and remote sensing, which are frequently used in disaster management and monitoring, are important sources of data acquisition and analysis tools. This study aims to the fire that occurred on the island of Lesvos on 23.07.2022 was analyzed by using Sentinel 2 and 5P remote sensing images and GIS tools. After the analysis, the total fire area was determined as 2450.4 ha. There is a wide variety of Land Use Land Cover types within this area. The most damaged area was forests and agricultural lands. Also, air pollution parameters, such as Formaldehyde and Nitrogen dioxide, were monitored and amounts were calculated with satellite images. The total amount of Formaldehyde was determined to be 0.449218 mol/m² on the fire day, and the total amount of NO₂ was 0.07963977 mol/m² for 4 days.

Key words: air pollutants, forest fire, image processing, Sentinel 5P tropomi

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