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MONITORING OF COMBUSTION RELATED AIR POLLUTANTS OCCURRING AFTER FOREST FIRES WITH REMOTE SENSING IMAGES: A CASE STUDY TURKEY AND GREECE FIRES

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Abstract

The forest fires, which cause multiple defects in ecosystems, economies and social life, are among the most destructive natural disasters in the world. In addition, forest fires are a very important source of gases and aerosols worldwide. Rapidly developing remote sensing systems and monitoring methods for atmospheric phenomena are of critical importance in observing environmental problems on a global scale, compared to traditional air pollution monitoring technologies. Air pollutant parameters caused by large-scale fires in Turkey and Greece between July 26 and August 10 were analyzed and mapped with Sentinel-5P satellite images within this study. Also, significant information such as the directions and amounts of pollutants has been accessed by the maps created. Analyzes indicate that the highest Formaldehyde amount was determined as 0.001464 mol/m², carbon monoxide (CO) was 0.7044 mol/m², and sulfur dioxide (SO₂) was determined as 0.0252 mol/m². The results showed that satellite images contribute greatly to the identification and monitoring of pollutant patterns caused by forest fires. This information is critical for officials, emergency services and the local community during and after the hazard. Those maps created using satellite images will inform governments and lawmakers more effectively to reduce (or to prevent, if necessary) emission of pollutants.

Key words: air pollutants, forest fire, image processing, sentinel-5P TROPOMI

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