Fire in the Earth System Abstracts
Vol. 2 FES-187
Granada, Spain, 4-8 July, 2023

MULTITEMPORAL ANALYSIS OF LAND-USE CHANGES IN THE 2022 FOREST FIRE THAT OCCURRED IN THE GUÁJARES COMARCA (GRANADA, SPAIN)

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Abstract

Forest fires are a great concern for humankind, especially in rural areas, since there is an important relationship between nature and society. In addition, non-controlled forest fires represent the loss of natural resources and soil nutrients, generating possible irreparable economic losses, desertification, displacement of the household, etc. Little is known about spatiotemporal changes in land uses before and after forest fires occur considering long term-approaches, for example, 50 years, also combined with satellite images to assess recent changes. In 2022, in Los Guájares, Granada, 5,000 ha were affected by a forest fire reaching a perimeter of 150 km. To date, the origin and causes of this forest fire are unknown. We hypothesize that the high intensity of this fire could be originated due to non-planned land use changes. Therefore, to investigate if any specific spatiotemporal change in land uses in this forest fire was determinant, we used a dataset characterized by aerial images from 1956 to 2013 (approximately every 10 years), images from the Sentinel 2 satellite from March 2022 to March 2023 (approximately every month), using geostatistic tools as well as indexes such as NBR (Normalized Burned Ratio) and NDVI (normalized difference vegetation index).

Keywords: land management; regional geographic analysis; land-use changes; Los Guájares;

Acknowledgments: Plan Propio de Investigación y Transferencia de la Universidad de Granada, 2022. Programa 1. Proyectos de Investigación Precompetitivos: Caracterización de propiedades clave en la relación agua-suelo para el estudio de la influencia del fuego en el balance hídrico y el carbono para el planteamiento de estrategias de restauración.