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Assessment of fire effects to flood susceptibility: the case of the summer 2021 forest fires in Greece

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Greece, as the rest of the Mediterranean countries, faces wildland fires every year. Besides their short-term socioeconomic impacts, the ecological destruction and the loss of human lives, forest fires also increase the burnt areas' susceptibility to floods, as the vegetation, which acted in a protective way against runoff and soil erosion, is massively removed. Among the most severe wildland fire events in Greece were those of summer 2021, which were synchronous to very severe heat waves that hit the broader area of the Balkan Peninsula. More than 3,600 Km2 of land were burnt and a significant amount of natural vegetation was removed. Four of the burnt areas are examined in this work, namely Attica, Northern Euboea, the Peloponnese, and Rhodes in order to assess their susceptibility to future flood events. The burnt areas were mapped, and their geological and geomorphological features were studied, while flood risk assessment was accomplished through logical rules applied in G.I.S. In this work we present the results of the flood risk assessment.