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# Mapping Burned Areas from Sentinel-1 and Sentinel-2 Data †

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Fires devastated Europe during the summer of 2021, with hundreds of events burning across the Mediterranean, causing unprecedented damage to people, properties, and ecosystems. Remote sensing (RS) is widely recognized as a key source of data for monitoring wildfires [1], exploiting both optical/multi-spectral and microwave satellite sensors [2]. Optical/multi-spectral and microwave satellite observations can provide information on areas affected by fires as well as on fire severity, which is the damage that affects vegetation. The major advantage of RS technology is the consistent and operative availability of data over large areas; these data can also be provided in near real-time for a fast assessment of fire damage. In this work, we exploit both Sentinel-1 (S1) and Sentinel-2 (S2) data from the Sicily region, Italy, to map and monitor the burned areas of the summer 2021 season. Coherent/incoherent change detection approaches have been applied to extract areas where the RS signal has registered a significant change that could have been induced by the occurrence of fire. Cross-comparison analyses between the results obtained using optical and microwave images have been carried out to characterize the performance of the exploited RS methods. To this aim, the fire perimeters available from the European Forest Fire Information System (EFFIS) were used.

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