

Abstract

Regional Forest Fires Database: A Tool to Support Forest Fire Management [†]

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Italian national and regional forest fire-fighting resources, including personnel, vehicles, helicopters and airplanes, are shared. The national resources are mainly represented by CL-415 air-tankers, deployed by the Unified Air Operation Center (COAU).

Each region is responsible for defining its forest fire response plan and has a Permanent Unified Operating Center (SOUP) to coordinate the intervention of the regional aerial resources (helicopters) supported by the local ground forces (park rangers, civil protection volunteers, fire stations). Each region has only limited access to the resources of its neighbor or of COAU, especially if multiple forest fires occur simultaneously, and may establish an agreement with the Regional Firefighters' Department to deploy an additional contingent of firefighters to increase the preparedness level during the forest fire season.

Given this regulatory framework, it is difficult to obtain a comprehensive view covering both aerial and ground forces deployed on forest fires, integrated by a systematic reconstruction of the burned areas. This paper is focused on the forest fire statistics and the burned area mapping in the region Lazio, Italy. The statistics are based on a three-year period (2019–2021). Specific data on ground and aerial firefighting forces and the mapping of the burned area for each individual forest fire event exceeding five acres have been collected. Currently the database comprises nearly two thousand forest fire records, geospatially referenced.

The database allows for the assessment of the current conditions of use of regional helicopters and national air-tankers and the proportion of the ground forces to aerial forces deployed in forest fire fighting, and provides a sound basis for further analysis, whether as a single event reconstruction, or monitoring the seasonal trend and the firefighting response efficiency achieved. The statistics support the conclusion that most forest fires nowadays are due to human activity and the damage is exacerbated by the global climate change.

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