

NATURAL DISASTER MANAGEMENT & GEOGRAPHIC INFORMATION SYSTEMS: BENEFITS AND LIMITATIONS FOR THE HELLENIC FIRE CORPS

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Abstract

The purpose of the current project is to present the benefits that can be achieved by the introduction and usage of Geographic Information Systems (GIS) as an integral part of the operational planning of the Hellenic Fire Corps.

For the purposes of our analysis, two Fire Stations were chosen that included within the boundaries of their jurisdictions: a) sectors of industrial land uses and/or b) stand alone industrial units, both of which are adjacent to forests whose vegetation could be described as evergreen sclerophyllous shrubs, ranging in height between 1.5 and 3 meters.

Several stand alone industrial units and few industrial areas were identified, where a potential wildfire is likely to cause a technological accident and, additionally, all of the necessary data were recorded and entered into GIS.

Utilizing the fuel model (Dimitrakopoulos *et al.* (2001), Dimitrakopoulos (2002)) for evergreen sclerophyllous shrubs in a slightly modified version (Athanasiou and Xathopoulos, 2009), values of surface fire rate of spread were predicted. The estimated values were obtained by using BehavePlus fire behavior prediction system.

Calculations were conducted, based on various scenarios of mean as well as extreme meteorological conditions (prevalent during the fire seasons in Greece) combined with several possible ignition points. By comparing the estimated time that these possible wildfires need to reach each industrial unit with the time that the fire crews need to arrive at the same one, useful conclusions can be drawn that can be incorporated in the decision making process, in the framework of prevention and pre-mitigation planning.

Key words: forest fires, Geographic Information Systems, decision making