



Preliminary results of the PREFER FP7 Project

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The need to improve the information and intelligence support for forest fire prevention is widely recognized. Fire prevention is still the most cost-effective strategy when compared to firefighting and extinguishing that are costly, local, and triggered only in response to already ongoing crises.

PREFER project, funded under the EU FP7 (G.A. 312931), intends to contribute at responding to such a pragmatic need of southern Europe's forests by: providing timely information products based on the exploitation of all available spacecraft sensors, offering a portfolio of products focused on pre- and post-crisis forest fire emergency, suitable for the users in the different countries of the European Mediterranean area. The PREFER Service portfolio consists of two main services:

1. Information Support to Fire Preparedness/Prevention Phase" (ISP) Service
2. Information Support to Fire Recovery/Reconstruction Phase" (ISR) Service

This service is already at an advanced stage having completed the first year of activity. During this time several products have been consolidated: seasonal fuel maps; daily and seasonal fire hazard maps; seasonal risk maps; prescribed fire maps.

This paper aims at presenting the preliminary results of the research activity carried out in the framework of the PREFER project, focusing, in particular, on these recalled above.

As for Fire Risk and Hazard assessment, many indexes have been developed in the last years. Hardly any of them uses data derived from satellite images. The FPI index is an exception to this rule which, in addition, makes use of meteorological data. In spite of being a very complete index, the FPI still allows room for improvement which justify the interest of PREFER in it. PREFER's innovative approach to FPI will allow taking into account the effect of solar illumination conditions in determining the humidity present in the dead vegetation, and therefore its proneness to burn. PREFER innovation also focus in allowing the index to take into account the influence of water present in the alive vegetation (relevant in determining the fire regime) through the Equivalent Water Thickness. PREFER will use daily FPI forecasts to produce a seasonal fire hazard index by introducing in the model the human factor as captured by the fire occurrence statistics.

PREFER will produce also seasonal fire risk maps by combining the seasonal hazard data with vulnerability and exposure maps.

Finally, Prescribed Burning (PB) represents the controlled application of fire to vegetation under specific environmental conditions to attain planned resource management objectives. The main objective of the PREFER service for PB is to support the user in the identification of the areas and the time, that is where and when, the PB practice is applicable in a secure way. The main innovation, taking into account the results previously obtained in the frame work of other European projects (FIREPARADOX), will be the integration of the advanced remote sensing techniques that have not yet been developed for the problem under study, aiming at developing an index capable to provide the right time to intervene with the PB in the area of interest.