



Doctoral Thesis Title: Modelling live fuel moisture content for wildfire risk evaluation and mapping in the Valencian Community forest areas

Supervisor/s: Ángel Antonio Balaguer Beser and Luis Ángel Ruiz Fernández

Abstract:

Live fuel moisture content (LFMC), defined as the ratio of water content in the vegetation over the dry mass, is an important factor in determining wildfire risk and it can have a significant effect on fire behavior [5]. Its value depends, among other factors, on the plant species, weather conditions, soil type, exposure conditions, etc. ([1] and [3]). Therefore, updated estimates of LFMC in different forest species are necessary for the assessment of forest fire risk. Since April 2014, HCV measurements have been collected in field sampling plots of the Valencian Community (Spain). However, this methodology does not allow for a sufficient sampling mesh, due to the cost it entails.

The main objective of this doctoral thesis is focused on the construction and implementation of precise and robust LFMC models from forest plots, so they can be extrapolated to the Valencian Community (Spain), and their estimates updated regularly, using information from the previous days (or near prediction) based on the records provided by successive mid-resolution satellite images (Sentinel 2 [2], supported by Landsat 8) and meteorological data collected on the territory [4]. The validation process of these models and the verification of their usefulness in relation to the occurrence or spread of forest fires will be important. The final result should be transferred for high-resolution wildfire risk mapping and integrated into a web browser to be used in the Integrated Forest Fire Management System of the Valencian Community.

Available Means:

The student has a predoctoral contract from the call for aid PAID-01-19 from the Universitat Politècnica de València (UPV), subprogram 1. The field data will be supplied by the Dirección General de Prevención de Incendios Forestales of the Generalitat Valenciana and the company VAERSA. We have the financial support of the company Red Eléctrica de España S.A.U. through a collaboration agreement with the UPV.

References:

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