

# INFLUENCE OF FIRE SEVERITY ON PLANT REGENERATION THROUGH REMOTE SENSING IMAGERY

*Ricardo Díaz-Delgado<sup>1</sup>, Francisco Lloret<sup>1</sup> and Xavier Pons<sup>2,1</sup>*

1 CREAM. Fac. Ciencias. Bellaterra. 08193. Barcelona. SPAIN. Telephone list: 34 3 581-1877, -2700, -2666, -2850. Fax: 34-3-5811312, E-mail list: [rdiaz@creaf.uab.es](mailto:rdiaz@creaf.uab.es), [lloret@uab.es](mailto:lloret@uab.es), [x.pons@uab.es](mailto:x.pons@uab.es).

2 Departament de Geografia. Universitat Autònoma de Barcelona. Bellaterra, 08193. Barcelona. Spain. Telephone: 34 3 581-3067, -1891

A fire severity map was carried out on the terrain over a large fire (2692 ha) occurred in July 1994 at the Barcelona province (NE of Spain). Seven categorical classes were assigned to the apparent plant cover status as a function of the burning intensity. The categories were: Surface fire, canopy partially affected (with some green leaves), burned trees with burned leaves, burned trees with thin branches along all the trunk, burned trees with thin branches only on top of the trunk, burned trees without thin branches, and burned trees which only conserve the trunk. We acquired several Landsat TM images from dates immediately before and after the fire, in order to map fire severity and to monitor the plant regeneration processes. Fire severity mapping has been successfully applied and results have been checked with the ground severity map. Plant regeneration monitoring was done through NDVI measurements (average values standardised with neighbour unburned control plots). Phenological intervals of NDVI measurements were established for every plant cover category (7), severity class (7), and for the resulting crossed categories (33). NDVI decline due to fire was positively correlated with fire severity class. NDVI recovering rates were different for each severity class but did not follow the expected patterns. Thus, results are given for each

dominant species, severity class and crossed categories. Although dominant species do regenerate differently, crossed categories with severity classes increase plant response variability. Such a result leads to a better understanding of the influence of a major fire regime parameter on plant regeneration.

**Note:** This paper will be presented as a poster (poster abstract).