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Title: A model for the management of fire -fighting resources in the control of Forest Fires

Un modelo para la asignación de recursos al combate de Incendios Forestales

Author(s):

Ramón Granada M., Guillermo Julio A., Patricio Pedernera A., Miguel Castillo S

Abstract: The present work attempts to provide a model for expediting resources needed for fire-fighting with the aim of improving decision-making in the management of fire-fighting by rationalising the available resources. A solution was reached by means of complete binary linear programming, the entrance parameters of which (surface area burned, perimeter and speed of propagation) were obtained by means of a simulator of forest fire expansion using the Kitral System. The development of the model included some considerations in respect of the way in which decisions were taken, inasmuch as in many cases political decisions carry far more weight than technical ones, which directly affects the success of fire management programmes, since the costs of resources (principally aerial resources) are high. It is also important to have a clear evaluation of the forest land which may be useful in moments of high incidence or extremely conflictive fires.

The model developed delivers coherent results in most cases. It is important to mention that the use of this type of tool, together with a system of fire diagnosis can generate considerable cost savings in the fire management programmes as well as determining the most efficient amounts and placement of resources for the protected terrain. The incorporation of new technological tools is necessary for improvements in the dispatch of resources, since the greater the information the managers have at their disposal when a new outbreak occurs, the more accurate their subsequent decisions, in addition to the fact that response times will be considerably reduced.