CONFERENCIA

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OR AND MITIGHATION OF WILDSFIRE HAZARD

ABSTRACT

Wildfires pose a threat to life and property in many parts of the world. A common strategy to mitigate this hazard is to reduce the fuel load in the landscape. This can be achieved mechanically or by means of prescribed burning. Selecting sites to reduce wildfire hazard is a complex problem. It is a spatio-temporal problem with multiple objectives and constraints. These will be discussed and a mixed integer programming model will be presented. The model will be illustrated with examples. Some computational aspects of the solution method will be discussed. There are circumstances when a wildfire becomes so intense and out of control that there is no longer any point in further suppression activities. In this case firefighting resources are deployed to visit and service sites containing important community assets. The wildfire sweeping across a landscape imposing time windows on the service time of each asset. The Incident Management Team, under enormous pressure of time and complexity, must decide which assets should be visited and by which vehicle type and in which sequence. The objective is to minimise the economic value of the loss to the community. This problem has elements in common with the Orienteering Problem but also some additional complexities. A formulation of the model will be presented and some illustrative solutions presented. Unfortunately state of the art MIP solvers (e.g. CPLEX) cannot solve these problems in operational times. This issue has been resolved by development of a heuristic. Some discussion of the heuristic and its performance will be presented.

Fecha: 3 de OCTUBRE de 2018 (miércoles)

Hora: 16,00 horas

Lugar: Aula Miguel de Gúzman

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