



Current state and trends of northern hemisphere wildfires, with particular emphasis to erosion effects on western Mediterranean areas

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The objectives of the work are to assess the relevance of western Mediterranean wildfires in the context of northern hemisphere countries (North America, Europe and CIS countries) and to evaluate the type of causes and erosion effects using as study case the administrative area of the Valencian Community in Spain.

To accomplish the first objective a downscaling procedure using statistical data have been developed based on two detail levels: (1) the most general analysis makes a temporal comparison (1991-2001) according to number of wildfires and burned area between the three northern hemisphere regions (North America, CIS countries and Europe); (2) the second analysis focus exclusively on European countries and the role of Mediterranean regions in such context, also based on number of fires and burned areas.

For the second objective a specific analysis of an Administrative area in Eastern Spain has been developed. The methodology has been applied to the Autonomous Region of Valencia (Spain), a territory of 2.3 M hectares. Two different approaches has been instrumented: (1) a temporal analysis of statistical data (1976-2006) to establish wildfire causes trends and (2) a GIS spatio-temporal analysis (1993-2005) of wildfire recurrence and impact on land degradation using estimates of actual and potential erosion following USLE methodology.

Results show that at large scale context in Europe there has been a constant increase of the number of wildfires during the period 1991-2001. Within Europe, the Mediterranean is the region where wildfires are most intensive (in number) and extensive (in hectares), and among northern Mediterranean countries, Spain records more than one third of the registered wildfires for the last 20 years and in most years more than 50% of the burnt Mediterranean area.

Specific results for the Valencian Community shows that in the 13 year period almost 10% of the territory has been burned, and that only less than 2% of the total area has experienced a second fire recurrence, being negligible the zones with a third fire burst. In terms of soil covers, most fires have occurred on natural areas (91%). Of those, 40% can be understood as natural climax autochthonous vegetation formations.

Soil erosion rates also show an important increase from the USLE estimation between pre and post-fire conditions. Although these should be taken as preliminary results, the dramatic increment of the erosion rates suggests the need of further detailed research taking into account the pre and post-fire scenarios.