

International Journal of Wildland Fire

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Contents	Volume 18	Issue 7	2009
<p>An overview of mountain meteorological effects relevant to fire behaviour and bushfire risk Jason J. Sharples <i>International Journal of Wildland Fire</i> 18, 737–754</p>		<p>Mountain meteorological effects can significantly affect fire behaviour, leading to otherwise unexpected fire behaviour that could endanger firefighting crews and compromise suppression activities. This paper presents an overview of the main elements of mountain meteorology relevant to fire weather and discusses how they might affect bushfire behaviour, development and risk.</p>	
<p>Factors influencing the pattern of fire severities in a large wildfire under extreme meteorological conditions in the Mediterranean basin Imma Oliveras, Marc Gracia, Gerard Moré and Javier Retana <i>International Journal of Wildland Fire</i> 18, 755–764</p>		<p>Large fires leave different degrees of canopy consumption (fire severity) on the burned landscape. This paper analyzes how the different factors that play a role in a wildfire (fuels, topography and meteorology) influence the resulting pattern of fire severities.</p>	
<p>Climate, lightning ignitions, and fire severity in Yosemite National Park, California, USA James A. Lutz, Jan W. van Wageningen, Andrea E. Thode, Jay D. Miller and Jerry F. Franklin <i>International Journal of Wildland Fire</i> 18, 765–774</p>		<p>This study presents a quantitative relationship between spring snowpack and lightning-ignited fires, and also between annual area burned and fire severity for the 3027-km² Yosemite National Park landscape. We project 19% more annual lightning-ignited fires and 22% more annual area burned at high severity by 2049 due to decreased snowpack resulting from climate change.</p>	
<p>Validation of FIRETEC wind-flows over a canopy and a fuel-break François Pimont, Jean-Luc Dupuy, Rodman R. Linn and Sylvain Dupont <i>International Journal of Wildland Fire</i> 18, 775–790</p>		<p>The propagation of a wildfire depends strongly on the dynamics and turbulence of the wind flow. This study demonstrates the ability of the physically based model FIRETEC to accurately simulate wind flow over continuous and discontinuous vegetation canopies with neutral stratification.</p>	
<p>The efficacy of fire and fuels reduction treatments in a Sierra Nevada pine plantation Leda N. Kobziar, Joe R. McBride and Scott L. Stephens <i>International Journal of Wildland Fire</i> 18, 791–801</p>		<p>In 25–30-year old Sierra Nevada ponderosa–Jeffrey pine plantations, prescribed fire is found to be most effective at reducing potential wildfire behavior, and limiting potential fire-induced tree injuries and mortality when compared with mastication and controls.</p>	
<p>A surface fuel classification for estimating fire effects Duncan C. Lutes, Robert E. Keane and John F. Caratti <i>International Journal of Wildland Fire</i> 18, 802–814</p>		<p>A classification of surface fuels, called Fuel Loading Models, was developed by simulating emissions and soil temperature in a fire effects model, agglomeratively clustering the simulated effects into unique Effects Groups and developing 21 classes of duff, litter, fine woody debris and logs that predict the emissions and soil temperature in the Effects Groups.</p>	
<p>Estimation of grassland biophysical parameters using hyperspectral reflectance for fire risk map prediction D. Gianelle, L. Vescovo and F. Mason <i>International Journal of Wildland Fire</i> 18, 815–824</p>		<p>This paper focuses on the importance of using high spatial and spectral resolution sensors for the estimation of grassland fire risk. In fact, according to maps obtained from the biomass, water content and curing ratio information, grassland fire risk showed a surprisingly high spatial variability.</p>	
<p>Number of sensors versus time to detection in wildfires Pablo I. Fierens <i>International Journal of Wildland Fire</i> 18, 825–829</p>		<p>This paper evaluates the cost of the application of wireless sensor networks for early detection of wildfires by relating the time to detection and the burned area to the number of sensor nodes in a region that is protected.</p>	

<p>Detection of clusters using space–time scan statistics Marj Tonini, Devis Tuia and Frédéric Ratle <i>International Journal of Wildland Fire</i> 18, 830–836</p>	<p>The recognition of overdensities of fires and the ability to locate them in space and in time can help supporting fire management. This study applied a statistic method to locate and test the significance of space–time clusters of fires in Florida. Fire locations were provided by satellite images.</p>
<p>Burn-scar patterns and their effect on regional burnt-area mapping in insular South-East Asia Jukka Miettinen and Soo Chin Liew <i>International Journal of Wildland Fire</i> 18, 837–847</p>	<p>This study investigates limits of burnt-area mapping with medium to coarse-resolution (250–1000 m) satellite imagery imposed by burn-scar patterns and size distribution in insular South-East Asia. We find that burn-scar patterns and size distribution permit reliable burnt-area mapping in the wetland areas.</p>
<p>Estimation of fire severity using pre- and post-fire LiDAR data in sagebrush steppe rangelands Cheng Wang and Nancy F. Glenn <i>International Journal of Wildland Fire</i> 18, 848–856</p>	<p>A simple and efficient LiDAR-derived method was developed for fire severity in a sparsely vegetated shrub-steppe. The method used the average vegetation height change from pre- and post-fire LiDAR data. The LiDAR method was superior in all fire severity classes, with a notable improvement in accuracy in the moderate severity class, compared to results from optical imagery.</p>
<p>Post-fire survival and flushing in three Sierra Nevada conifers with high initial crown scorch Chad T. Hanson and Malcolm P. North <i>International Journal of Wildland Fire</i> 18, 857–864</p>	<p>We analyzed 4-year post-fire survival of 354 ponderosa and Jeffrey pines with no remaining green needles following wildland fire in the Sierra Nevada. Half of the medium–large pines produced green needles 1 year after fire, and survived. Red fir responded similarly. This indicates post-fire logging often removes otherwise viable trees.</p>
<p>Flame interactions and burning characteristics of two live leaf samples Brent M. Pickett, Carl Isackson, Rebecca Wunder, Thomas H. Fletcher, Bret W. Butler and David R. Weise <i>International Journal of Wildland Fire</i> 18, 865–874</p>	<p>Interactions of two burning leaf samples were studied. Local gas and particle temperatures were measured along with time to ignition and flame duration of both leaves. Time to ignition of the upper leaf was not significantly affected by the presence of the lower leaf, but flame duration was affected.</p>
<p>Spectral emission of flames from laboratory-scale vegetation fires P. Boulet, G. Parent, A. Collin, Z. Acem, B. Porterie, J. P. Clerc, J. L. Consalvi and A. Kaiss <i>International Journal of Wildland Fire</i> 18, 875–884</p>	<p>In this paper outdoor experiments on the radiation emission by flames of vegetation fires are reported. The experimental setup is first described. Then results are provided for fires in a fuel tray, and for larger flames in a tunnel. The absorption of the vegetation and the emission by flames are then discussed.</p>
<p>An experiment to test the potential for glass fragments to ignite wildland fuels Klaus-Peter Wittich and Tanja Müller <i>International Journal of Wildland Fire</i> 18, 885–891</p>	<p>Can glass fragments start forest fires during sunny weather periods? It is an accepted opinion, but ignition experiments conducted in northern Germany under mid-spring to mid-summer conditions did not supply evidence. Only one of the light-focussing bottle bottoms used was able to slightly char spruce needles, beech leaves and blades of grass.</p>



Georgia fires in summer.
 Photo: Georgia Forestry Commission