

International Journal of Wildland Fire

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Contents	Volume 17	Issue 1	2008
‘Fire climatology’ Edited by TW Swetnam and RS Anderson			
<hr/> Fire Climatology in the western United States: introduction to special issue Thomas W. Swetnam and R. Scott Anderson <i>International Journal of Wildland Fire</i> 17 , 1–7			
<hr/> Temporal and spatial structure in a daily wildfire-start data set from the western United States (1986–96) P. J. Bartlein, S. W. Hostetler, S. L. Shafer, J. O. Holman and A. M. Solomon <i>International Journal of Wildland Fire</i> 17 , 8–17		Daily fire-start records from the western United States exhibit considerable temporal and spatial structure. Lightning-caused fires display greater intra- and inter-annual variability than human-caused fires, reflecting the influence of prevailing weather and climate, while human-caused fires display a close association with population centres, transportation corridors, and outdoor activity areas.	
<hr/> Evaluating predictive models of critical live fuel moisture in the Santa Monica Mountains, California Philip E. Dennison, Max A. Moritz and Robert S. Taylor <i>International Journal of Wildland Fire</i> 17 , 18–27		Fire history data was used to determine potential critical live fuel moisture thresholds, below which large fires become more likely. Spring precipitation was found to be the best predictor of the timing of two potential thresholds at 71% and 77% live fuel moisture.	
<hr/> Climate effects on historical fires (1630–1900) in Utah Peter M. Brown, Emily K. Heyerdahl, Stanley G. Kitchen and Marc H. Weber <i>International Journal of Wildland Fire</i> 17 , 28–39		New fire-scar chronologies from 19 sites in Utah and Nevada provide the first assessment of historical climate effects on wildfires in this region. Data confirm the importance of fire- season drought and the role of Pacific Ocean teleconnections, and suggest north-south variation in the effects of ENSO.	
<hr/> Climate drivers of regionally synchronous fires in the inland Northwest (1651–1900) Emily K. Heyerdahl, Donald McKenzie, Lori D. Daniels, Amy E. Hessel, Jeremy S. Littell and Nathan J. Mantua <i>International Journal of Wildland Fire</i> 17 , 40–49		In the past (1651–1900), spring-summer were warm and summers were warm-dry when surface fires burned syn- chronously in dry forests across interior Oregon, Washington and southern British Columbia. Coincident warm phases of El Niño–Southern Oscillation and Pacific Decadal Oscillation also favoured warm-dry conditions that led to synchronous fires in this region.	
<hr/> Variability in fire–climate relationships in ponderosa pine forests in the Colorado Front Range Rosemary L. Sherriff and Thomas T. Veblen <i>International Journal of Wildland Fire</i> 17 , 50–59		Differences in fire–climate relationships were examined in low v. high elevation ponderosa pine forests. Below 2100 m, fires were dependent on moist conditions prior to dry fire years. Above 2100 m, fires were dependent primarily on drought. Regional fire years were associated with drought and the interactions of ENSO, PDO and AMO.	
<hr/> Climatic influences on fire regimes in montane forests of the southern Cascades, California, USA A. H. Taylor, V. Trouet and C. N. Skinner <i>International Journal of Wildland Fire</i> 17 , 60–71		This study identifies the relationships between climate vari- ability and fire occurrence and extent in the southern Cas- cades before the onset of organised fire suppression in 1905. Widespread burning occurred mainly in warm dry years but fire–climate relationships were not stable over the period from AD 1700 to 1900.	

Long-term relations among fire, fuel, and climate in the north-western US based on lake-sediment studies

Cathy Whitlock, Jennifer Marlon, Christy Briles, Andrea Brunelle, Colin Long and Patrick Bartlein
International Journal of Wildland Fire **17**, 72–83

Pollen and high-resolution charcoal records from 15 sites across the northwestern US provide information on late-glacial and Holocene fire and vegetation history. The data suggest that past fire activity was closely linked to changing climate and fuel conditions, and fire frequency was highest during periods of drought. Variability in the timing and duration of fire maxima points to the importance of local and sub-regional controls on fire occurrence and highlights the need for a network of long fire-history records to reconstruct regional patterns.

Long-term fire history from alluvial fan sediments: the role of drought and climate variability, and implications for management of Rocky Mountain forests

Jennifer Pierce and Grant Meyer
International Journal of Wildland Fire **17**, 84–95

Alluvial fan deposits preserve millennial-length records of fire. We used these records to examine changes in fire over the last 2000 years in Yellowstone National Park mixed-conifer forests and drier central Idaho ponderosa pine forests. Severe fires occurred in both areas during past intervals of drought and increased climate variability.

Holocene vegetation and fire regimes in subalpine and mixed conifer forests, southern Rocky Mountains, USA

R. S. Anderson, C. D. Allen, J. L. Toney, R. B. Jass and A. N. Bair
International Journal of Wildland Fire **17**, 96–114

We examined pollen and charcoal from sediments in southern Rocky Mountain, USA, lakes and bogs to determine climate, vegetation change, and fire history during the post-glacial period. Fires were most common between 12 000 and 9000, and 2000 and 1000 years ago. The lack of fire due to suppression during the 20th century is an anomaly.

Paired charcoal and tree-ring records of high-frequency Holocene fire from two New Mexico bog sites

Craig D. Allen, R. Scott Anderson, Renata B. Jass, Jaime L. Toney and Christopher H. Baisan
International Journal of Wildland Fire **17**, 115–130

Bog charcoal and tree-ring fire records show replicate sediment cores can reproduce key charcoal patterns, despite complications with bog sediments; fire scars and charcoal both document an unusual lack of fire since about 1900 AD; and charcoal records probably underestimate fire event recurrence at these high-frequency fire sites.

RESEARCH PAPERS

Long-term impacts of prescribed burns on soil thermal conductivity and soil heating at a Colorado Rocky Mountain site: a data/model fusion study

W. J. Massman, J. M. Frank and N. B. Reisch
International Journal of Wildland Fire **17**, 131–146

Observational evidence indicates that prescribed burns alter the thermal conductivity of soils to a depth of at least 0.20 m without altering its bulk density. Model data fusion results suggest that soil thermal energy flow can be affected for several months to years following the fire and that these effects propagate to depths exceeding one metre.

Estimating crown fuel loading for calabrian pine and Anatolian black pine

Ömer Küçük, Ertuğrul Bilgili and Bülent Sağlam
International Journal of Wildland Fire **17**, 147–154

This paper presents the results of a study conducted to predict above-ground fuel loading for calabrian and Anatolian black pine. Regression equations, developed from a total of 418 destructively sampled calabrian and black pine trees and saplings, were able to effectively predict foliage, fine branch (<0.6 cm), medium branch (0.6–1.0 cm), active fuels (foliage + fine branch), thick branch (1.0–2.5 cm), and total fuel loading.
