

Contiguous United States wildland fire emission estimates during 2003-2015

www.nrfirescience.org/resource/18828

Wildfires are a major source of air pollutants in the United States. Wildfire smoke can trigger severe pollution episodes with substantial impacts on public health. In addition to acute episodes, wildfires can have a marginal effect on air quality at significant distances from the source, presenting significant challenges to air...

Author(s): Shawn P. Urbanski, Matthew C. Reeves, Rachel E. Corley, Robin P. Silverstein, Wei Min Hao

Year Published: 2018

Type: Document

Book or Chapter or Journal Article

Towards enhanced risk management: planning, decision making and monitoring of US wildfire response

www.nrfirescience.org/resource/15485

This paper is the preface to a special issue focused on US wildfire response. The nine papers included build from a 2016 conference special session on monitoring, modelling and accountability of fire management policies and practices. Here we provide the unifying theme for these papers, summarise each from this perspective, and...

Author(s): Christopher J. Dunn, David E. Calkin, Matthew P. Thompson

Year Published: 2017

Type: Document

Book or Chapter or Journal Article

Should scientists be required to use a model-based solution to adjust for possible distance-based detectability bias?

www.nrfirescience.org/resource/14590

The most popular method used to gain an understanding of population trends or of differences in bird abundance among land condition categories is to use information derived from point counts. Unfortunately, various factors can affect one's ability to detect birds, and those factors need to be controlled or accounted for so that any...

Author(s): Richard L. Hutto

Year Published: 2016

Type: Document

Book or Chapter or Journal Article

Long-term post-disturbance forest recovery in the Greater Yellowstone Ecosystem analyzed using landsat time series stack

www.nrfirescience.org/resource/14826

Forest recovery from past disturbance is an integral process of ecosystem carbon cycles, and remote sensing provides an effective tool for tracking forest disturbance and recovery over large areas. Although the disturbance products (tracking the conversion from forest to non-forest type) derived using the Landsat Time Series Stack...

Author(s): Feng R. Zhao, Ran Meng, Chengquan Huang, Maosheng Zhao, Feng A. Zhao, Peng Gong, Zhiliang Zhu, Le Yu

Year Published: 2016

Type: Document

Book or Chapter or Journal Article

Smoke management photographic guide: a visual aid for communicating impacts

www.nrfirescience.org/resource/14538

Communicating emissions impacts to the public can sometimes be difficult because quantitatively conveying smoke concentrations is complicated. Regulators and land managers often refer to particulate-matter concentrations in micrograms per cubic meter, but this may not be intuitive or meaningful to everyone. The primary purpose of...

Author(s): Joshua C. Hyde, Jarod Blades, Troy E. Hall, Roger D. Ottmar, Alistair M. S. Smith

Year Published: 2016

Type: Document

Technical Report or White Paper

Keeping it wild 2: an updated interagency strategy to monitor trends in wilderness character across the National Wilderness Preservation System

www.nrfirescience.org/resource/13591

Keeping It Wild 2 is an interagency strategy to monitor trends in selected attributes of wilderness character based on lessons learned from 15 years of developing and implementing wilderness character monitoring across the National Wilderness Preservation System. This document updates and replaces Keeping It Wild: An Interagency...

Author(s): Peter Landres, Chris Barns, Steve Boutcher, Tim Devine, Peter Dratch, Adrienne Lindholm, Linda Merigliano, Nancy Roeper, Emily Simpson

Year Published: 2015

Type: Document

Technical Report or White Paper

A systematic review of the physical health impacts from non-occupational exposure to wildfire smoke

www.nrfirescience.org/resource/13262

Climate change is likely to increase the threat of wild fires, and little is known about how wild fires affect health in exposed communities. A better understanding of the impacts of the resulting air pollution has important public health implications for the present day and the future. Method: We performed a systematic search to...

Author(s): Jia C. Liu, Gavin Pereira, Sarah A. Uhl, Mercedes Bravo, Michelle L. Bell

Year Published: 2015

Type: Document

Synthesis

Determination of the smoke-plume heights and their dynamics with ground-based scanning LIDAR

www.nrfirescience.org/resource/13611

Lidar-data processing techniques are analyzed, which allow determining smoke-plume heights and their dynamics and can be helpful for the improvement of smoke dispersion and air quality models. The data processing algorithms considered in the paper are based on the analysis of two alternative characteristics related to the smoke...

Author(s): Vladimir A. Kovalev, Alexander P. Petkov, Cyle E. Wold, Shawn P. Urbanski, Wei Min Hao

Year Published: 2015

Type: Document

Book or Chapter or Journal Article

Perverse incentives: the case of wildfire smoke regulation

www.nrfirescience.org/resource/14235

Wildfire is on the rise. The United States is witnessing a spectacular increase in acres lost to catastrophic wildfires, a phenomenon fed by the generally hotter and dryer conditions associated with climate change. In addition to losses in lives, property, and natural resources, wildfires contribute

thousands of tons of air...

Author(s): Kirsten H. Engel

Year Published: 2014

Type: Document

Book or Chapter or Journal Article

Gas-particle partitioning of primary organic aerosol emissions: 3. Biomass burning

www.nrfirescience.org/resource/13476

Atmospheric organic aerosol concentrations depend in part on the gas-particle partitioning of primary organic aerosol (POA) emissions. Consequently, heating and dilution were used to investigate the volatility of biomass-burning smoke particles from combustion of common North American trees/shrubs/grasses during the third Fire Lab...

Author(s): Andrew A. May, Ezra Levin, Christopher J. Hennigan, Ilona Riipinen, Taehyoung Lee, Jeffrey L. Collett, Jose L. Jimenez, Sonia M. Kreidenweis, Allen L. Robinson

Year Published: 2013

Type: Document

Book or Chapter or Journal Article

Making monitoring count: project design for active adaptive management

www.nrfirescience.org/resource/12768

Ongoing environmental change requires that managers develop strategies capable of achieving multiple objectives in an uncertain future. Active adaptive management (AAM) offers a robust approach to reducing uncertainty while also considering diverse stakeholder perspectives. Important features of AAM include recognition of learning...

Author(s): Andrew J. Larson, R. Travis Belote, Matthew A. Williamson, Gregory H. Aplet

Year Published: 2013

Type: Document

Book or Chapter or Journal Article

Highlights of satellite-based forest change recognition and tracking using the ForWarn System

www.nrfirescience.org/resource/12395

Satellite-based remote sensing can assist forest managers with their need to recognize disturbances and track recovery. Despite the long standing availability of raw imagery, the systematic delivery of spatially continuous, ready-to-use, processed products has evaded us until recently. The web-based ForWarn system moves us a step...

Author(s): Steven P. Norman, William W. Hargrove, Joseph P. Spruce, William M. Christie, Sean W. Schroeder

Year Published: 2013

Type: Document

Technical Report or White Paper

A technical guide for monitoring wildlife habitat

www.nrfirescience.org/resource/12383

Information about status and trend of wildlife habitat is important for the U.S. Department of Agriculture, Forest Service to accomplish its mission and meet its legal requirements. As the steward of 193 million acres (ac) of Federal land, the Forest Service needs to evaluate the status of wildlife habitat and how it compares with...

Author(s): Mary M. Rowland, Christina D. Vojta

Year Published: 2013

Type: Document

Technical Report or White Paper

Summary of science, activities, programs, and policies that influence the rangewide conservation of greater sage-grouse (*Centrocercus urophasianus*)

www.nrfirescience.org/resource/15420

Because of their broad range, variations in population traits and characteristics across this range, and the variability in habitat conditions and threats within this range, conservation of sage-grouse is a unique challenge compared to isolated or range-restricted species, primarily due to the scale of the effort. This complexity is...

Author(s): D.J. Manier, D.J.A. Wood, Z.H. Bowen, R.M. Donovan, M.J. Holloran, L.M. Juliusson, K.S. Mayne, S.J. Oyler-McCance, F.R. Quamen, D.J. Saher, A.J. Titolo

Year Published: 2013

Type: Document

Technical Report or White Paper

FUEGO - Fire Urgency Estimator in Geosynchronous Orbit - A proposed early-warning fire detection system

www.nrfirescience.org/resource/12388

Current and planned wildfire detection systems are impressive but lack both sensitivity and rapid response times. A small telescope with modern detectors and significant computing capacity in geosynchronous orbit can detect small (12 m²) fires on the surface of the earth, cover most of the western United States (under conditions of...

Author(s): Carlton R. Pennypacker, Marek K. Jakubowski, Maggi Kelly, Michael Lampton, Christopher Schmidt, Scott L. Stephens, Robert Tripp

Year Published: 2013

Type: Document

Book or Chapter or Journal Article

Roads impact the distribution of noxious weeds more than restoration treatments in a lodgepole pine forest in Montana, U.S.A.

www.nrfirescience.org/resource/8346

A century of fire suppression has created unnaturally dense stands in many western North American forests, and silviculture treatments are being increasingly used to reduce fuels to mitigate wildfire hazards and manage insect infestations. Thinning prescriptions have the potential to restore forests to a more historically...

Author(s): Jennifer L. Birdsall, Ward W. McCaughey, Justin B. Runyon

Year Published: 2012

Type: Document

Book or Chapter or Journal Article

Technical guide for monitoring selected conditions related to wilderness character

www.nrfirescience.org/resource/12437

The purpose of monitoring wilderness character is to improve wilderness stewardship by providing managers a tool to assess how selected actions and conditions related to wilderness character are changing over time. Wilderness character monitoring provides information to help answer two key questions about wilderness character and...

Author(s): Peter Landres, Steve Boutcher, Liese Dean, Troy E. Hall, Tamara Blett, Terry Carlson, Ann Mebane, Carol Hardy, Susan Rinehart, Linda Merigiano, David N. Cole, Andy Leach, Pam Wright, Deb Bumpus

Year Published: 2009

Type: Document

Technical Report or White Paper

A MODIS direct broadcast algorithm for mapping wildfire burned area in the western United States

www.nrfirescience.org/resource/8191

Improved wildland fire emission inventory methods are needed to support air quality forecasting and guide the development of air shed management strategies. Air quality forecasting requires dynamic fire emission estimates that are generated in a timely manner to support real-time operations. In the regulatory and planning realm,...

Author(s): Shawn P. Urbanski, J. Meghan Salmon, Bryce L. Nordgren, Wei Min Hao

Year Published: 2009

Type: Document

Book or Chapter or Journal Article

Wildfire smoke: a guide for public health officials

www.nrfirescience.org/resource/12451

Smoke rolls into town, blanketing the city, turning on streetlights, creating an eerie and choking fog. Switchboards light up as people look for answers. Citizens want to know what they should do to protect themselves. School officials want to know if outdoor events should be cancelled. The news media want to know how dangerous the...

Author(s): Michael Lipsett, Barbara Materna, Susan Lyon Stone, Shannon Therriault, Robert Blaisdell, Jeff Cook

Year Published: 2008

Type: Document

Technical Report or White Paper

Treatment of data influenced by exceptional events; final rule

www.nrfirescience.org/resource/12454

This action finalizes a rule to govern the review and handling of air quality monitoring data influenced by exceptional events. Exceptional events are events for which the normal planning and regulatory process established by the Clean Air Act (CAA) is not appropriate. In this rulemaking action, EPA is finalizing the proposal to:...

Author(s): U.S. Environmental Protection Agency

Year Published: 2007

Type: Document

Management or Planning Document, Technical Report or White Paper

Photographic handbook for comparing burned and unburned sites within a dry forested and grassland mosaic: a tool for communication, calibration, and monitoring post-fire effects

www.nrfirescience.org/resource/11237

This photograph handbook describes characteristics and burn severity of a dry forested and grassland mosaic that burned within the last decade. We show photographs of different burned and unburned sites to help compare fire occurrence in similar stands. The handbook provides local land managers with a quick, inexpensive, and...

Author(s): Theresa B. Jain, Molly Juillerat, Jonathan Sandquist, Mike Ford, Brad Sauer, Robert J. Mitchell, Scott McAvoy, Justin Hanley, Jon David

Year Published: 2007

Type: Document

Technical Report or White Paper

Using focus groups to involve citizens in resource management - investigating perceptions of

smoke as a barrier to prescribed forest burning

www.nrfirescience.org/resource/11214

Participants in a series of focus groups discussed how their tolerance for smoke varied by the source of the smoke and found their opinions changing as they talked with other participants. Even those opposed to smoke from agricultural burning eventually found smoke from prescribed forest burning would be acceptable under appropriate...

Author(s): Brad R. Weisshaupt, Matthew S. Carroll, Keith A. Blatner, Pamela J. Jakes

Year Published: 2006

Type: Document

Technical Report or White Paper

Land-base changes in the United States: long-term assessments of forest land condition

www.nrfirescience.org/resource/126

Forest land conditions affect the potential of U.S. forests to sustain a wide array of forest goods and environmental services (e.g., biodiversity) that society demands. Forest survey data collected by U.S. Department of Agriculture Forest Service Forest Inventory and Analysis (FIA) units are being used in long-term assessments of U...

Author(s): Ralph J. Alig

Year Published: 2005

Type: Document

Technical Report or White Paper

Automated forecasting of smoke dispersion and air quality using NASA terra and aqua satellite data (Task 5) - Final Report to the Joint Fire Science Program

www.nrfirescience.org/resource/11150

This document contains a description of the air quality forecasting system in operation at the Missoula Fire Science Laboratory. This air quality forecasting system has been steadily assimilating new techniques and algorithms as they have been developed over the past four years. Individual components as well as assemblies of...

Author(s): Wei Min Hao, Shawn P. Urbanski

Year Published: 2005

Type: Document

Technical Report or White Paper

Wildland fire in ecosystems: effects of fire on air

www.nrfirescience.org/resource/12587

This state-of-knowledge review about the effects of fire on air quality can assist land, fire, and air resource managers with fire and smoke planning, and their efforts to explain to others the science behind fire-related program policies and practices to improve air quality. Chapter topics include air quality regulations and fire;...

Author(s): David V. Sandberg, Roger D. Ottmar, Janice L. Peterson, John Core

Year Published: 2002

Type: Document

Technical Report or White Paper

Real-time smoke particulate sampling; fire storm 2000

www.nrfirescience.org/resource/11202

Reports the findings of a study comparing the results of instruments measuring smoke particulate in real time to gravimetric samplers in Missoula and Hamilton, Montana, during the summer of 2000. Real-time, particulate monitoring instruments were evaluated to determine their accuracy when measuring smoke particulate concentrations...

Author(s): Andy Trent, Mary A. Davies, Richard Karsky, Richard W. Fisher
Year Published: 2001
Type: Document
Technical Report or White Paper

Germination and establishment ecology of big sagebrush: Implications for community restoration

www.nrfirescience.org/resource/15421

Big sagebrush (*Artemisia tridentata*) seedling recruitment is limited by seed production and dispersal in space and time, by genetic constraints of specific ecotypes, and by environmental factors that include weather, microsite attributes, soil microbiota, herbivory, and inter- and intraspecific competition.

Establishing this species...

Author(s): Susan E. Meyer
Year Published: 1994
Type: Document
Conference Proceedings

Hydrocarbon and biomass fuel fire field tests

www.nrfirescience.org/resource/11021

Biomass and hydrocarbon fuel fires are two common sources of obscuring smoke which present significant operational challenges over a broad range of possible viewing wavelengths. This is especially true of very large fires where the primary smoke particles (approx. 0.1-0.3 um diameter) obscure vision by both scattering and absorption...

Author(s): Lawrence F. Radke, Dean A. Hegg, J. David Nance, Jaime H. Lyons, Krista K. Laursen, R. J. Ferek, Peter V. Hobbs, Raymond E. Weiss
Year Published: 1990
Type: Document
Conference Proceedings

Sagebrush over time: A photographic study of rangeland change

www.nrfirescience.org/resource/15404

This publication is not available online. It will have to be ordered from a library.

Author(s): Kendall L. Johnson
Year Published: 1986
Type: Document
Conference Proceedings