Fire After Hurricanes: What Does the Research Say?

The fall 2018 hurricane season has had an incredible impact on the forest fuels in many areas of the South due to hurricanes Michael and Florence. In the areas affected, managers are likely anticipating the impacts of these events on future wildland fires. To assist in this effort, we are working to gather and share the existing fire science information related to storm impacts on wildland fire. Some research suggests that hurricane events “promote the fires that are of higher than normal intensity” (Myers and Lear, 1998) while other research suggests that the relationship between wind events and fire can be much more complex with impacts differing by spatial and temporal scale (Canon et al. 2017). You may find the following publications and resources valuable for making decisions regarding the impacts of hurricanes and extreme wind events on Southern forests and wildland fire.

**Research and Reviews:**

- Hurricane-fire interactions in coastal forests of the south: a review and hypothesis (Myers and Lear, 1998)
- A review and classification of interactions between forest disturbance from wind and fire (Canon et al. 2017)
- Fire management ramifications of Hurricane Hugo (Saveland and Wade, 1991)
- The influence of experimental wind disturbance on forest fuels and fire characteristics (Cannon et al. 2014)
- Hurricane Hugo: South Carolina forest land research and management related to the storm Haymond and Harms (Eds.) 1996
- Disturbance and coastal forests: A strategic approach to forest management in hurricane impact zones Stanturf et al. 2007
- Fuels management on the National Forests in Mississippi after Hurricane Katrina Bryant and Boykin 2007

**Fuel Loading Resources:**

- Digital Photo Series (includes Hurricane series)
- Stereo photo series for quantifying natural fuels. Volume XII: Post-hurricane fuels in forests of the Southeast United States
- Photo Series for Estimating Post-Hurricane Residues and Fire Behavior in Southern Pine

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Hurricane Michael Damage near Panama City, FL  
Photo by Glenn Fawcett, U.S. Customs and Border Protection
SFE Thanks Dr. Alan Long, Welcomes Dr. Raelene Crandall

On October 1st, 2018, Dr. Alan Long retired from Southern Fire Exchange after starting and leading the program for nearly 10 years. The SFE team presented him with an award for his many years of service at their annual planning meeting in late August. We will miss him dearly and wish him all the best as he stays busy in retirement.

Dr. David Godwin, who has been with SFE since 2013, will be stepping up to fill his position as administrative director. Dr. Raelene Crandall, assistant professor of fire ecology at the University of Florida, will take over as lead Principal Investigator.

Lessons Learned from Hosting Learn-n-Burn Events Webinar Rescheduled

Due to Hurricane Michael, the webinar on “Learn-n-Burn” originally scheduled for October 10th has been rescheduled. The webinar will now take place on Thursday, November 29th at 1:00 PM ET. Anyone who has already registered will be sent an updated link to access the webinar on the 29th. Those who have not registered can visit http://learnburn.eventbrite.com.

WHAT'S NEW?

USDA Forest Service Research and Development Newsletter Fire Issue

The most recent edition of the monthly Research and Development newsletter from the USDA Forest Service was devoted to wildland fire issues. Featured stories include the recent Yale E360 article on the Forest Service’s increased use of prescribed fire for wildfire risk reduction and the development of a remote-sensing photogrammetry technique to obtain data that can be used to construct 3-D representations of landscapes.

Article Highlights Success of the Joint Fire Science Program and Fire Science Exchange Network

An article in the most recent edition of Wildfire Magazine connects organizational divides working against the effective application of wildland fire science to the many wildland fire issues we face today. In part, the piece highlights the great strides made in science delivery through the Joint Fire Science Program’s Fire Science Exchange Network.

FY2020 Strategic Environmental Research and Development Program (SERDP) Solicitations Released

The Department of Defense is seeking environmental research and development proposals for funding beginning in Fiscal Year 2020. Projects will be selected through a competitive process and details are available on the program website.
UPCOMING EVENTS CONTINUED

**International Wildland Fire Safety Summit and Human Dimensions of Wildland Fire Conference**
Dec. 10-14, 2018
Asheville, NC

**Wildland Urban Interface Conference**
March 26-28, 2019
Reno, NV

**6th International Fire Behavior and Fuels Conference**
Apr. 29-May 3, 2019
Albuquerque, NM

**3rd Cohesive Strategy Workshop**
October 21-24, 2019
Plymouth, MA

**Webinars**

- **Advanced Fire Environment Learning Unit 2018 Fall Season AAR**
  November 7, 2018 - 12:00 PM ET

- **Current Efforts to Reignite Prescribed Burning Across Central Hardwood Forests**
  November 20, 2018 - 2:00 PM ET/1:00 PM CT

- **SFE Webinar: Prescribed Burning after Drought**
  November 28, 2018 – 1:00 PM ET

- **SFE Webinar: Lessons Learned from Hosting Learn-n-Burn Events**
  RESCHEDULED due to Hurricane Michael! November 29, 2018 - 1:00 PM ET

- **Prescribed Fire Policy Barriers: Findings from a JFSP Project on Challenges and Strategies on Federal Lands Across the West**
  November 29, 2018 - 2:30 PM ET

**Fire and Herbivory**
December 4, 2018 - 2:00 PM ET/1:00 PM CT

**Patch-Burn Grazing and Native Pollinators**
December 11, 2018 - 2:00 PM ET/1:00 PM CT

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**Women and Diversity in Fire Science**

Recognizing underrepresented groups in fire science can encourage others to follow them into the field. This is important as fire science works to include and support people of all backgrounds. To that end, an August editorial in the open access journal *Fire* recognized women leaders in fire science research and announced a new Special Collection devoted to acknowledging current and future *Diversity Leaders in Fire Science*.

The Tallahassee Woman magazine also recently highlighted women in science, including fire science, who are working at Tall Timbers Research Station. And in case you missed it, read the essay published in the October 2017 issue of Wildfire Magazine on one man’s experience attending a women-centered TREX.

**New Book by Stephen J. Pyne, Here and There: A Fire Survey Now Available**

The University of Arizona press recently published *Here and There: A Fire Survey* by Dr. Stephen J. Pyne. In this collection of essays, Pyne reflects on wildland fire history, management, and policy in the U.S. and across the globe. The book is available in paperback, as a PDF, and as an ebook.

**Final Reports Released for Two Joint Fire Science Program Projects**

Final reports are available for two JFSP-funded projects. The *first project* examined the impacts of smoke exposure on the health of wildland firefighters. Key findings included a need for further research on acute and longer-term health effects of smoke exposure beyond populations already susceptible due to age or health condition. The researchers also found that firefighters, particularly those participating in certain activities may face increased health risks from smoke exposure.

The *second project* estimated the effects of climate change on wildland fires and the consequences for air quality. In part, the study found that fire area burned is predicted to increase globally throughout the 21st century due to climate and population density changes. PM 2.5 concentrations over North America are predicted to increase significantly as a result of increased fire activity. These increases in fire-related emissions could offset benefits from reductions in anthropogenic PM 2.5 and significantly affect future ozone air quality.

**Interview with Steve Miller, 2017 IAWF Excellence in Fire Management Award Winner**

The April issue of Wildfire Magazine included an interview with Steve Miller, the winner of the 2017 Excellence in Fire Management Award. Steve was formerly the Chief of the Bureau of Land Resources for the St. John River Water Management District. The interview covers Steve’s career and background as well as his thoughts on the state of wildland fire management and advice for others in the field. Steve has been a great friend and supporter of the Southern Fire Exchange and we’re excited for him to receive this recognition. For more about Steve, check out his SFE 10 Minute Interview.

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The Southern Fire Exchange is funded through the Joint Fire Science Program, in agreement with the United States Forest Service, Southern Research Station. This institution is an equal opportunity provider.

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Steve Miller, Photo by Wildfire Magazine
Upcoming FIRETEC Workshop at Fort Stewart

A workshop for experienced prescribed burners will be held on November 8th at Fort Stewart, Georgia. The workshop will focus on showcasing, evaluating, and exploring options for best use of FIRETEC prescribed fire simulations. If you are interested in attending, contact James Furman at jameshfurman@fs.fed.us by October 31st. Additional information on logistics will be sent to those who RSVP. For more information about FIRETEC and this Department of Defense funded project check out this Southern Fire Exchange [webinar from last spring](#).

NEW TECHNOLOGY AND TOOLS

WindNinja Requests User Testimonials

WindNinja is a computer program that computes spatially varying wind fields for wildland fire application. The WindNinja team is seeking input from users on how and why WindNinja has been useful. There is currently no dedicated funding to support further development, maintenance, and growth of WindNinja. Responses from end-users will help in the search for additional funding to support the continuation of the tool.

FWAS Fire Weather Alert System Tutorial Now Available

The Missoula Fire Sciences Lab has created a video tutorial for their Fire Weather Alert System. This new system is designed to provide text and email alerts whenever weather conditions near a specific location cross a pre-identified threshold. This could be used by prescribed burners or wildfire managers to get automated alerts when critical RH or windspeed thresholds are observed at nearby weather stations. The video covers the current proof-of-concept, state of the system, possible future development, and how to set up custom alerts.

The Hot-Dry-Windy Index

The new Hot-Dry-Windy Index (HDW) is a simple program to use when determining which days are more likely to have atmospheric conditions good for prescribed burning. Two articles on the development and use of the HDW appeared in the recent special issue of *Atmosphere* entitled “Fire and the Atmosphere” (open access).

Looking for more information on a specific topic?

Check out the publications section on the SFE website. There are more than 50 factsheets that explore different aspects of fire science available, and archived issues of Fire Lines.

RECENT FIRE SCIENCE PUBLICATIONS FOR THE SOUTH

- Bioturbation by mammals and fire interact to alter ecosystem-level nutrient dynamics in longleaf pine forests
- Fire effects on a fire-adapted species: response of grass stage longleaf pine seedlings to experimental burning
- Nest and brood site selection of eastern wild turkeys
- *Atmosphere* special issue “Fire and the Atmosphere” (Thirteen publications on smoke, smoke modeling, weather and air quality.)
- A reconceptualization of open oak and pine ecosystems of eastern North America using a forest structure spectrum
- Plant Community Response to the Management of an Invasive Tree (Chinese Tallow)