



Southern Fire Exchange



The Nature Conservancy   
Protecting nature. Preserving life.

## **Title: “Wildland Fire Smoke and Roadway Visibility: Predict, Prepare and Avert Accidents”**

**You are invited to attend our live webinar!**

NWCG Smoke Committee, Southern Fire Exchange, The Nature Conservancy and Montgomery Community College NC Prescribed Fire Training Center are collaborating to bring information on understanding wildland fire’s risk of smoke reducing roadway visibility. Reduced visibility from smoke has contributed to fatal incidents or accidents with serious bodily injury. Hosted by NWCG Smoke Committee on The Nature Conservancy systems, the webinar will be presented in three parts. Each part can be attended as an individual webinar should scheduling make it difficult to attend all three parts. The webinar will be archived for future viewing. The parts include:

**Part 1: “Superfog – what, how, where, when!”**

**Part 2: “Weather Information and tools available to stay ahead of Super-fog events!”**

**Part 3: “PB-Piedmont, Superfog Potential and Estimated Smoldering Potential operational status”**

### **Background Information**

Prescribed fire and wild fire management are integral programs of natural resource / land management agencies, as well as for public and private entities. Yet, the combination of smoke and fog and difficulties in forecasting and understanding their interactions has led to both public and firefighter vehicle accidents that have been fatal and/or caused serious bodily injury. Deploying smoke signs is certainly one response but it is not the only response. The most dangerous feature of an environment that unites smoke and weather suitable for fog is the rapidity by which a Superfog Event develops and creates an environment of near-zero visibility for a vehicle driver and then disappears. It is this unexpected, without warning, severely reduced visibility that can initiate a chain of events that lead to serious or even fatal vehicle incidents.

Superfog (smoke-fog events reducing visibility to less than 10 feet) or severely reduced visibility is predictable and negative outcomes and risks on roadways can be minimized. This life threatening consequence can form from smoldering combustion originating from prescribed fire or wild fire smoke. It requires due diligence and situational awareness on the part of fire management by using modeled/forecasted weather and responding accordingly with measures that may require the use of an onsite task group with pre-established authorization to close roadways.

## What you will learn?

This webinar reviews present and future efforts made by the US Forest Service and others to understand this important topic. The information and tools developed specifically to address wildland fire smoke, smoke transport and the likelihood of superfog formation are presented in three parts.

### Part 1 – “Superfog”

- 1) **What is Superfog and how it forms on your burn site**
- 2) **How common is Superfog on burn sites,**
- 3) **Superfog weather: What conditions allow superfog to leave your burn site and how far will it go,**
- 4) **Superfog weather: Identifying conditions that turn a typical safe burn into a disaster.**

### Part 2 – “Weather Information & Tools”

- 1) **Obtaining and tracking key environmental variables,**
- 2) **Reviewing operationally developed indexes (Turner Stability Index (TS), Atmospheric Dispersion Index (ADI), Low Visibility Occurrence Risk Index (LVORI)**
- 3) **Superfog Matrix Smart Tool for NWS Weather Forecasting Offices**

### Part 3 – “PB – Piedmont, Superfog Potential and Estimated Smoldering Potential”

- 1) **PB-Piedmont Web, Super-Fog Potential, and Estimated Smoldering Potential - moving science to a usable tool.**

For the last 40 years smoke events have beset fire management and field personnel. Incidents have occurred across the country. This webinar is an effort to eliminate the risk through:

1. **Enhancing our knowledge base,**
2. **Informing wildland fire personnel on the tools available,**
3. **Assisting wildland fire personnel in their cognitive awareness of smoke’s risk, and the**
4. **Predictability of smoke events whereby timely actions can be taken before severely reduced visibility occurs.**

Some events that have occurred across the country:



**On U.S. 17 between Dixon and Verona, NC a volunteer fireman, and Onslow County Sheriff Deputy died Saturday after a northbound truck struck them as they responded in the line of duty to a traffic accident during a Superfog Event.**

**June / 2008**



On State Hwy 211 between Supply and Bolton, NC early morning reduced visibility from prescribed burn contributes to vehicle accident. Signs were posted warning of dense smoke ahead. There were no sustained bodily injuries but substantial damage to the over turned vehicle.

March 2012



At least nine people were killed in a string of crashes involving about 20 vehicles on the northbound and southbound sides of Interstate 75 south of Gainesville, FL early Sunday, when smoke from a wildfire on Paynes Prairie reduced visibility to nearly nothing on the highway.

January / 2012



Vehicles remain at the scene of a traffic accident along Interstate 40 on Wednesday in northern Arizona near Parks. A semi and the remains of van on its front end from a crash on I-40 west of Parks Wednesday morning.

Credit: Arizona Department of Public Safety October 2016



The Mountain Parkway east of the Slade Kentucky exit remained closed Wednesday afternoon after a fatal crash involving multiple vehicles.

Credit: Charles Bertram  
[cbertram@herald-leader.com](mailto:cbertram@herald-leader.com)

November 2016

**Presenters/Authors:**

**Part 1 - Gary Achtemeier**, former Research Meteorologist USFS Southern Research Station – Retired

**Part 2 - Gary M. Curcio**, former Fire Environment Branch Head NC Forest Service – Retired

**Part 3 - Matthew Fearon**, research meteorologist –Dessert Research Institute

**Webinar Dates / Times / Links** *(Ctrl+Click on appropriate box or blue font to follow link)*

**Part 1: Superfog:**

Thursday, June 15, 2017

11:00 am | Mountain Daylight Time (Denver, GMT-06:00) | 2 hrs.

Meeting number (access code): 647 470 267

Meeting password: June15

[Add to Calendar](#)

When it's time, [join the meeting](#).

**Join by phone**

[1-240-454-0879](#) USA Toll

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**Part 2: Weather Information & Tools**

Thursday, June 22, 2017

11:00 am | Mountain Daylight Time (Denver, GMT-06:00) | 2 hrs.

Meeting number (access code): 647 682 574

Meeting password: June22

[Add to Calendar](#)

When it's time, [join the meeting](#).

**Join by phone**

[1-240-454-0879](#) USA Toll

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### Part 3; PB-Piedmont, Superfog Potential Table and Estimated Smoldering Potential

Thursday, June 29, 2017

11:00 am | Mountain Daylight Time (Denver, GMT-06:00) | 2 hrs.

Meeting number (access code): 648 919 595

Meeting password: June29

Add to Calendar

When it's time, [join the meeting](#).

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[1-240-454-0879](tel:1-240-454-0879) USA Toll

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#### **Education Credits:**

Continuing education credits have been applied for. Society of American Foresters Category 1 Credits have been requested for each part.

#### **Target Audience:**

The information being presented is for a diverse and sizeable natural resource participant base as well other emergency responders. It is inclusive but not limited to: Land managers and Owners, Prescribed Burners, Wildfire Suppression Personnel (Air Resource Advisor, Fire Behavior Analyst, Long Term Analyst, Incident Meteorologist, Safety Officer, and Liaison Officer), Air Quality Specialists and Managers, Smoke Modelers, Fire Weather Forecasters, Long-term Analysts, and State Burn Permit Agents, Highway Patrol, Emergency Management and Department of Transportation personnel.

#### **In summary**

At times Fire Management has accepted operations with elevated risk. This has been acceptable when it has been justified when strong planning and support are in place. Wildfires have addressed operational risk on a continuing basis for all fire line assignments when mitigated through aircraft support, construction or identification of safety zones, communications and lookouts, varied tactical approaches, and other means. Safety experts have even gone as far as recommending that medical personnel be prepositioned for firefighter support, and that additional resources for technical rescue and extraction be placed at their immediate disposal. This essential approach needs to be applied to wildland smoke and this webinar can facilitate this effort. With the substantial capital investment made on science based information and fire management's support for the development of operational tools, the risk of fatal outcomes from wildland fire smoke can be minimized. If roadways are not to be automatically closed, then the use of the information and tools presented in this webinar provides fire programs the ability to predict and avoid devastating events.