Smoke Impacts CA: 2020 Lessons - 2021 Actions

Communicating Current (and Future) Smoke Conditions to the Public

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Wildfire Smoke and COVID-19 risks to fire personnel and down-wind communities:

Conservative view of risks of COVID-19 and wildfire smoke

Based on:

1) Wildfire smoke exposure could result in greater susceptibility to COVID-19 and other viruses/bacteria (decrease in local and systemic immune function)

2) Wildfire smoke could worsen COVID-19 symptoms (increase hospitalization?)
   1) If smoke heading to a community with existing cases at home, plan, notification, response?

3) Wildfire smoke exposure could worsen outcome of those infected by COVID-19

4) Wildfire smoke may pose a risk to those recovering from serious COVID-19 infection (due to inflammation in damaged lungs resulting from smoke)
Wildfire Smoke and COVID-19
Frequently Asked Questions

The purpose of this document is to provide Air Resource Advisors and other environmental health professionals with key messages about wildfire smoke and COVID-19. It also provides resources that can be given to communities affected by wildfire smoke during community spread of SARS-CoV-2, the virus that causes COVID-19. This document was created in collaboration with CDC and COVID-19 related information was reviewed and cleared by CDC.

Why do people need to consider COVID-19 along with wildfire smoke?

- The COVID-19 pandemic is overlapping with the occurrence of wildfires in the United States.
- People of low socioeconomic status, including those who are homeless and with limited access to medical care.

Who else is at risk from wildfire smoke during the COVID-19 pandemic?

- The overlap of the COVID-19 pandemic with wildfire season in the United States complicates public health response to wildfire smoke. People who are either susceptible to or affected by COVID-19 may have health conditions that also make them vulnerable to wildfire smoke exposure. Persons who might also be at risk from wildfire smoke because of COVID-19 include:
  - Those who are immunocompromised or taking drugs that suppress the immune system;
  - Those with or recovering from COVID-19.

Translated into Spanish and Hmong with partial translations into Navajo, Apache and Hopi.

A 2021 revision in the works.

On front page of wildlandfiresmoke.net and direct link
https://drive.google.com/file/d/1Lfc1I_PMZFAWZack2cqtUkBmBXLpve0Q/view
Interagency Wildland Fire Air Quality Response Program

**Air Resource Advisors*** – dispatched as part of Incident Mgmt Teams

- **Modeling**: BlueSky smoke dispersion modeling
- **Monitoring**: National cache of 38+ PM2.5 units
- **Monitoring**: Data display and analysis including PurpleAir (w/EPA)
- **Messaging**: Daily air quality outlooks
- **Coordination**: w/state/tribal/local air quality regulatory agencies, public health dept. and impacted communities

Enables: reduction of smoke exposure through behavior modification messages (public or personnel), provide roadway smoke forecasting (when needed)

2018 ARA Smoke Outlooks covered area of 52 million people
2020 ARA Smoke Outlooks covered area of 60 million people

*Currently 60 ARA’s and 35 trainees, multiple entities represented including: FS, BLM, NPS, FWS, EPA, State Forestry (NC, GA, FL, OR, WA) Tribes, NWS, NRCS, CDC, AD-Contract, State/County, Air/Regulatory/Health (NC, CO, Placer County, Washoe County )

Backgrounds: Wildland Fire, Air Quality, Meteorology

ARA’s intersect with PIO, PSC, SOF, LOGS, IC, FBAN, IMET, and **not** there to regulate...
8 Million Plus Views in 2020

Local impact focus with consistent messaging/format

Many Outlooks translated into Spanish and other languages in 2020.
SEC. 1114. WILDFIRE TECHNOLOGY MODERNIZATION.

(a) PURPOSE.
—The purpose of this section is to promote the use of the best available technology to enhance the effective and cost-efficient response to wildfires—

(1) to meet applicable protection objectives; and
(2) to increase the safety of—

(A) firefighters; and
(B) the public.

(f) SMOKE PROJECTIONS FROM ACTIVE WILDLAND FIRES.
—The Secretaries shall establish a program, to be known as the “Interagency Wildland Fire Air Quality Response Program”, under which the Secretary concerned
— (1) to the maximum extent practicable, shall assign 1 or more air resource advisors to a type 1 incident management team managing a Federal wildland fire; and
(2) may assign 1 or more air resource advisors to a type 2 incident management team managing a wildland fire.

Ordering an ARA is in the California Mobilization Guide and they are tied to the IMT. CalFIRE use increasing…Talk with the IMT and Agency Administrator to express need.
Interagency Wildland Fire Air Quality Response Program (USFS-Lead) Wildland Fire Smoke COVID-19 Response Plan

• **Research & Development Response** (FS R&D-PNW AirFire Rx & WF Tools)
  • New Smoke Ensemble Forecast Tool to support ARAs
  • *COVID-19 and PM2.5 Dashboard* – See [https://covid.airfire.org/tracking/](https://covid.airfire.org/tracking/)
  • *Air Quality Sensor Display* – with EPA – Pilot Fire and Smoke Map Pilot Study [https://fire.airnow.gov/](https://fire.airnow.gov/)

• **Prepare and Train** - Interagency Wildland Fire Air Quality Response Program & Air Resource Advisors – Several 4-hour sessions of pre-season training
  • Implement weekly ARA Community calls to share experiences and emerging info
  • Weekly ARA Update email

• **USFS Regional Coordination on COVID-smoke risks and mitigation**

• **USFS, BLM, NPS, FWS, BIA, DOI-OWF Interagency Coordination calls on COVID-wildfire smoke risks mitigation**

• **Coordination with key agency partners and groups (EPA/CDC/NIOSH/FEMA)**

• **Preparation and Response Strategies** - Geographic Area Wildfire Response Plans
2016 through 2020 Wildfire Smoke Impacted Monitor Days (P. Lahm & A. Marsha, 2021)

- Fixed and Temporary Monitors 2016-2020 May 1-November 30
- AQI Level At or Above PM2.5 Unhealthy for Sensitive Groups Levels

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- Monitor number increased by about 25% from 2016 to 2020
AirNow Sensor Data Pilot
Permanent and Temporary Monitors with Low-cost Sensors
ARA Smoke Outlooks when in proximity of user
Fire and Smoke Map v1
https://fire.airnow.gov
September 11, 2020 shown

Integrates fire, smoke plume, and air quality monitors: Adds > 4500 low-cost sensors using EPA calibration algorithm

2020: 8/20 rollout after State, Tribal and Local input and modifications with over 7 million views in 2020
Carbon Monoxide...

- Rolled out in mid-season effort to address reported CO symptoms
- Monitoring Plan (Peer-reviewed by medical doctor and scientists @ EPA)
- Deployed CO dosimeters to key locations
- Incident Management Team coordination increased esp CA and OR
- Masimo RAD 57 COHb measurement tool sent to Creek Fire
- Numbers can be above ambient
- Not just near fire as previously noted
- Work continuing...
- Fourteen RAD 57 now available from cache to IMT through ARAs for 2021
- Plans for CO monitoring in 2021
1 firefighter hospitalized, 15 examined at Glass fire base camp for potential carbon monoxide poisoning
Dispersed Camps...

- Potential for smoke in spike camps
- Challenges for monitoring and response
- Much greater IMT (SOF and MEDL) coordination by ARAs in 2020
- IMT’s much more engaged on smoke and health issues
- Engagement with LOGS and others in smoke mitigation approaches
- ARAs have moved into the public and fire personnel smoke role
- Being a remote resource didn’t work effectively for these critical relationships to develop...many issues in 2020 on remote assignments – inability to monitor, interact with PIO’s, PSC...IMT and even local community-state partners
Advisory Meeting for Proposing an Emergency Regulation to Protect Workers from Wildfire Smoke

General Industry Safety Orders
Chapter 4, subchapter 7, new section

May 8, 2019
10:00 am - 3:00 pm
Harris State Building
1515 Clay St., 2nd Floor, Room 1
Oakland, CA

In response to the Occupational Safety and Health Standards Board’s decision on March 21, 2019 to GRANT in part Petition No. 573, the Division of Occupational Safety and Health (Cal/OSHA) will convene an advisory meeting seeking input on the development of an emergency rulemaking proposal addressing worker exposure to wildfire smoke. Cal/OSHA plans to hold this advisory committee meeting on May 8, 2019 in Oakland.

For further information and updates pertaining to the advisory meeting, any person interested in providing information and scientific and technical information about wild fire smoke exposure, control measures, feasibility, or costs may contact Deputy Chief of Health Eric Berg at (510) 386-7010 or Senior Safety Engineer Amalia Neidhardt at (916) 263-1944.

Meeting Documents
- Post-meeting Comments
- Pre-meeting Comments
- Agenda
- Draft Regulatory Text including both Appendices - 5/21/2019
- Draft Regulatory Text for Discussion - 5/8/2019

Background Documents
- Petition 573
- Gavin Newsom, Governor of California, Executive Order N-05-19
- About the Emergency Rulemaking Process
- Flow Chart on Emergency Rulemaking
Smoke Ready

Individuals and communities have the knowledge and ability to stay reasonably safe and healthy during smoke episodes

Individuals can:
- Limit time outdoors
- Minimize sources of indoor air pollution
- Create a “clean room”
- Purchase an air filter
- Know how to determine air quality

Communities can:
- Create clean air spaces/clean air shelters
- Educate residents
- Have resources to help vulnerable and underserved
WRF Dashboard - Smoke Dispersion Forecast Products (WF & Rx utility)

1. Transport Winds
2. Mixing Heights
3. Ventilation Index
4. Atmospheric Stability (PG Stability and Atmospheric Dispersion Index)
5. Transportation Safety (Low Visibility Risk Occurrence Index and Superfog Potential Index)

- Forecast maps at 54.215.0.128/smoke
- Point forecast at 54.215.0.128/wrf-dashboard
2021...

• 2021 and COVID with respiratory health is still with us...
• ARAs have moved into the public and fire personnel smoke advisory role
• COVID Funding not available like 2020
• Hopefully next ARA training late fall 2021
Questions and Information

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