



National Weather Service

Burn Scars

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Flood After Fire - Why Burn Scars Are Important

- Healthy forests have water absorbing characteristics:
 - Tree canopy
 - Duff layer on ground
 - Roots and vegetation



- Heat from wildfires destroys those systems

Flood After Fire - Why Burn Scars Are Important

- Hydrophobic Soil
 - Organic compounds vaporize in fire
 - Some move down into soil
 - Condense onto cooler soil particles
 - Form water repellent layer



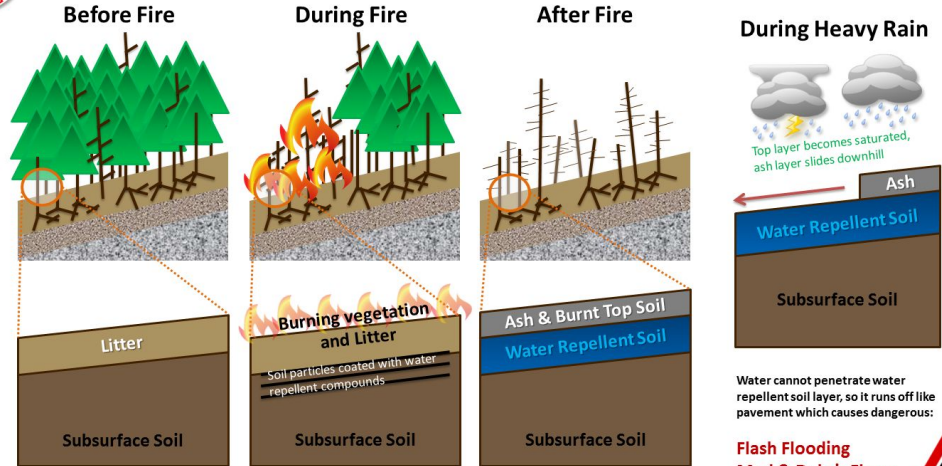
Photo: USFS

Flash Flooding & Debris Flows

- NWS is Warning Authority for Flash Floods
- Flash Flood is a sudden rise in water from rainfall, requiring immediate action to protect life & property
- Debris Flows are fast-moving landslides caused by intense rainfall.



Wildfire Burn Scars are a Flood Risk



Litter: organic material such as needles, leaves, grass, brush, bark.

Water Repellent Soils: formed when organic material such as trees, scrubs, plants and litter burn at high intensity, water repellent compounds are vaporized, and condense on cooler soil layers below, which prevents soil from absorbing water.

Flash Flooding
Mud & Debris Flows
Mudslides



www.weather.gov/bou/floodafterfire



NWS Actions

After Fire, Before Floods

- NWS works with partners to assess post burn flood risk
 - USFS BAER burn severity
 - USGS Debris Flows
 - County Emergency Management
 - Local Communities
- Flash Flood Thresholds Determined
 - .35" in 15 minutes, .75" in an hour
 - Updated with Experience

During Flood

- NWS monitors radar, rain gages
- Flash Flood Warning issued when thresholds met
- Advisory issued when thresholds not quite met
- Goal is for lead time
- Some Flash Flooding or Debris Flows may not have advance warning
 - Storm develops inside burned area



www.weather.gov/bou/floodafterfire



What you can do

- Be informed
 - Know the forecast
 - Know where your water comes from - where is upstream?
- Have a way to receive warnings
 - NOAA Weather Radio
 - FEMA App
 - County/Local warning systems
- Environmental cues: Warning may not come or be too late
 - Thunderstorm/rain upstream
 - Rapidly rising water
- Have a plan to evacuate, climb to safety

www.weather.gov/bou/floodafterfire



Notification

NOAA Weather Radio

SAME (Specific Area Message Encoding)

Tone Alert feature

Battery Backup

iNWS

<https://inws.ncep.noaa.gov/>

For NWS core partners (includes RMNP)

Administered, not for public



NOAA All Hazards Weather Radio
NOAA's National Weather Service

NOAA All Hazards Weather Radio

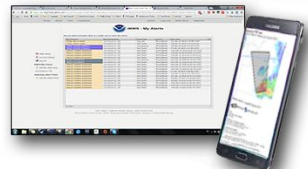


GET THE INFORMATION YOU NEED... 24 HOURS A DAY... GET A NOAA WEATHER RADIO!



iNWS - Interactive NWS
National Weather Service Mobile Decision Support Services (MDSS)

iNWS MOBILE ALERTING
Receive customized text message and e-mail alerts for National Weather Service products that you care about.

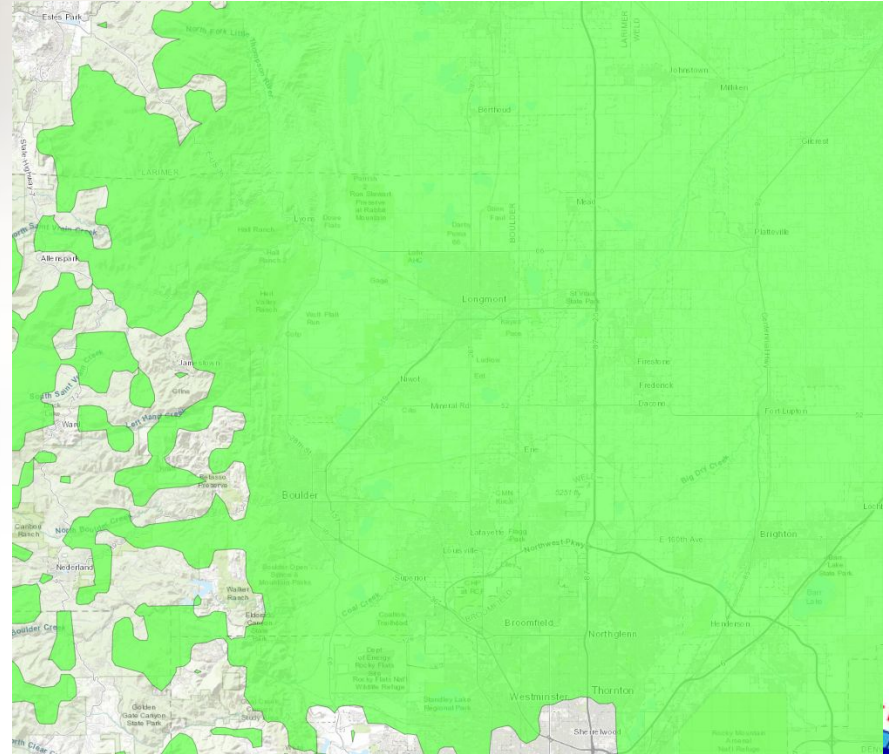


www.weather.gov/bou/floodafterfire



Notification

- **Wireless Emergency Alerts**
 - Cell phone alerts like Amber
 - Alerts for high end flash floods
 - Don't opt out!!!
- **NOAA Weather Radio**
 - Tone Alert
 - SAME (Specific Area Message Encoding)
- **Boulder County Alerting**
www.boco911alert.com



www.weather.gov/bou/floodafterfire



Situational Awareness - Brief Yourself

www.weather.gov/bou

NATIONAL WEATHER SERVICE

HOME FORECAST FIRST WEATHER SAFETY INFORMATION EDUCATION NEWS SEARCH ABOUT

Local forecast by
CO, 8P or ZIP code
Enter location ...
Go
Location Help

News Headlines

- [Bulwer Winter Storm Takes Aim on Northeastern Colorado Wednesday](#)
- [2019 NWS Boulder/Denver NEXUS/Jocster Schedule](#)

SITUATION REPORT
Strong winter storm to impact the
Local Colorado and eastern plains
Wednesday. Roadways to
heavy. [Read more](#)

MY FORECAST
Denver, CO

NWS Forecast Office Boulder, CO
Denver/Boulder, CO
Weather Forecast Office

Current Hazards Current Conditions Radar Forecasts Rivers and Lakes Climate and Past Weather Local Programs

Click a location below for detailed forecast.

Overcast
34°F
1°C
Get Denver info

Today
20%
Cloudy with Slight Chance
Showers
High: 54°F

Tonight
20%
Slight Chance Showers
Partly Mostly Cloudy
Low: 32°F

Watches, Warnings & Advisories

- Winter Storm Warning
- Winter Weather Advisory
- Autumnal Watch
- Winter Storm Watch
- Flood Watch
- High Wind Watch
- Special Weather Statement
- Hazardous Weather Outlook

Last Map Update: Mon, Mar. 11, 2019 at 10:01:07 am MDT

Weather Blog

Local Past

Winter Weather Decision Support



Situational Awareness - Brief Yourself

www.weather.gov/bou

Weather Story

Potent Winter Storm Takes Aim on Northeastern Colorado

Winter Storm Watch

Total Snowfall Amounts Through 6 AM Thursday Morning

Blizzard Conditions Likely across Northeast Colorado on Wednesday

Heavy snow & very windy conditions likely
Conditions will be considerably worse east of I-25
Wind Gusts to 70 mph
Extensive blowing & drifting snow—whiteout conditions
Some Roads likely to be closed
High winds could cause damage to power lines
High Impact to ranchers and cattle

For the latest Road Report from CDDT call 311 or go to cotrip.org

NATIONAL WEATHER SERVICE

HOME FORECAST FIRST WEATHER SAFETY INFORMATION EDUCATION NEWS SEARCH ABOUT

Local forecast by: **CO, 87° or 2P area**

Enter location ...
Go
Location Help

News Headlines

- [Blizzard Winter Storm Takes Aim on Northeastern Colorado Wednesday](#)
- [219 MVA Boulder/Denver, N.Y.VARN, Spotter Schedule](#)

SITUATION REPORT
Strong winter storm to impact the Lower Colorado and eastern plains Wednesday. Roadways to heavy. [Read more](#)

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Current Hazards Current Conditions Radar Forecasts Rivers and Lakes Climate and Past Weather Local Programs

Click a location below for detailed forecast.

Overcast
34°F
1°C [Get Details](#)

Today
20%
Cloudy; then slight chance Showers
High: 54°F

Tonight
20%
Slight chance Showers
Partly Mostly Cloudy
Low: 22°F

Click a location below for detailed forecast.

Watches, Warnings & Advisories

- Winter Storm Warning
- Winter Weather Advisory
- Arctic Air Mass Watch
- Winter Storm Watch
- Flood Watch
- High Wind Watch
- Special Weather Statement
- Hazardous Weather Outlook

Last Map Update: Mon, Mar. 11, 2013 at 10:01:07 am MDT

Potent Winter Storm Takes Aim on Northeastern Colorado

Weather Story

Local Past

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Situational Awareness - Brief Yourself

Hazard Weather Outlook

www.weather.gov/bou/hwo

The screenshot shows the National Weather Service website for Boulder, CO. The page includes a navigation bar with links for HOME, FORECAST, PAST WEATHER, SAFETY, INFORMATION, EDUCATION, NEWS, SEARCH, and ABOUT. Below the navigation bar, there are sections for Local forecast by "City, St" or ZIP code, News Headlines, and MY FORECAST for Denver, CO. The main content area features a weather forecast for Boulder, CO, with a current temperature of 42°F and a high of 48°F. A map of the region is displayed, showing the Hazardous Weather Outlook (HWO) area highlighted in yellow. A red box highlights the "Hazardous Weather Outlook" link in the "Watches, Warnings & Advisories" section. Below the main content, there are three smaller sections: "Weather Story", "Winter Weather Decision Support", and "Local Radar".

This is a close-up view of the Hazardous Weather Outlook (HWO) map and link. The map shows the Boulder, CO area with a yellow shaded region indicating the HWO. The map includes labels for various locations such as Steamboat Springs, Fort Collins, Greeley, Fort Morgan, Akron, Granby, Georgetown, Denver, Deer Trail, Castle Rock, Limon, Aspen, Fairplay, Buena Vista, Colorado Springs, Gunnison, Saguache, Canon City, Pueblo, Ordway, and Eads. A red box highlights the "Hazardous Weather Outlook" link in the "Watches, Warnings & Advisories" section. The text "Click a location below for detailed forecast." is visible above the map. The "Last Map Update: Thu, Mar. 18, 2021 at 2:40:06 pm MDT" is displayed at the bottom.



Situational Awareness - Brief Yourself

Hazard Weather Outlook

www.weather.gov/bou/hwo

This hazardous weather outlook is for northeast and north central Colorado.

.DAY ONE...Today and Tonight

It will be dry today with slightly warmer temperatures. Patchy fog is possible again in the South Platte River Valley late tonight and early Friday morning, but confidence remains low.

.DAYS TWO THROUGH SEVEN...Friday through Wednesday

Dry weather and a warming trend will last through Saturday. Snow will return to the mountains by Saturday night, when mainly light snow accumulations and slick road conditions can be expected. On Sunday and Monday, snow in the mountains could become more widespread, while rain and snow will spread across the plains. There is potential for some snow accumulation in lower elevations by Sunday night.

Cooler and unsettled weather will remain in the forecast through the middle of next week.

.SPOTTER INFORMATION STATEMENT...

Spotter activation will not be needed.

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Situational Awareness - Brief Yourself

Area Forecast Discussion

www.weather.gov/bou/afd

. HYDROLOGY...

Daily discussion on burn scar flood threat.

Get your geek on!

.HYDROLOGY...

Issued at 938 AM MDT Tue Apr 6 2021

Scattered rain and snow showers and isolated thunderstorms will develop in or near the burn scars this afternoon, with the main focus per latest convective allowing models toward the Cameron Peak Fire. While these should not be very intense, they would be capable of producing a quick tenth to quarter inch of rain. Snow levels also lower fairly quickly from around 8000 feet to 6500 feet in the main shower/storm time between noon and 4 pm. Therefore, the threat of any flash flooding this afternoon is quite low.



Get Involved

Report

- Rain in the burn scar:
 - .25" in 15 minutes
 - 0.75" in an hour
- Flooding
- Debris Flows
- Post rain impacts

How to Communicate

- Facebook
 - NWSBoulder
- Twitter
 - @NWSBoulder
 - #cowx
- Online
 - <https://inws.ncep.noaa.gov/report/>
- App
 - MPing
- CoCoRaHS
 - cocorahs.org



Citizen Scientist Opportunity

- Spotter Training - Foothills Version April 20
- weather.gov/bou/spot_training

Tuesday, April 20

6:30pm **Spotter Training: Mountains/Foothills**

When Tue, April 20, 6:30pm – 8:30pm

Where Virtual ([map](#))

Description Please register to the [link](#) below. This training **will** focus on the Mountains and Front Range Foothills of Colorado. Emphasis on fire burn scars and flash flood potential for the upcoming season.

<https://attendeegotowebinar.com/register/9161453452458099979>

