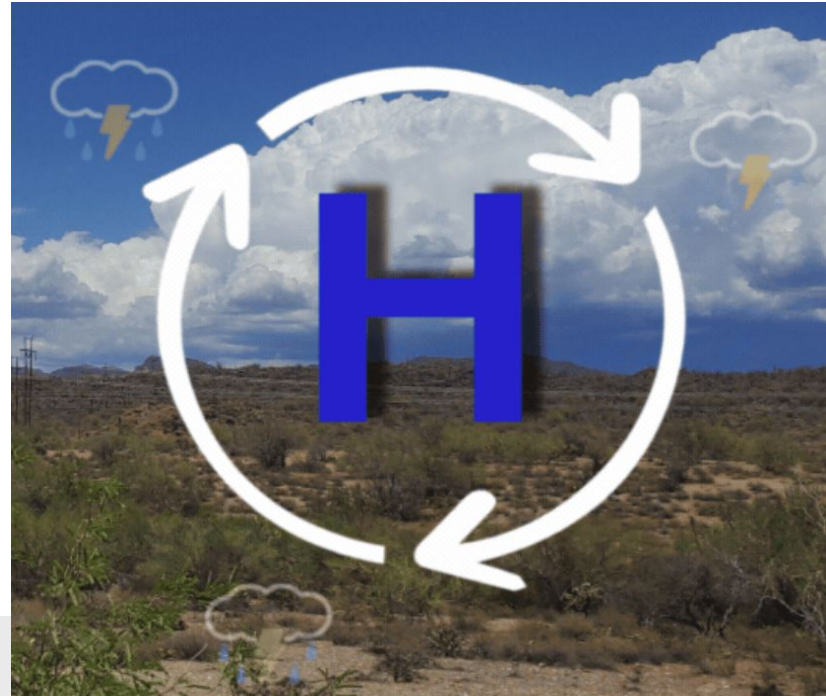




# July Safety Information: Monsoon and Flash Floods

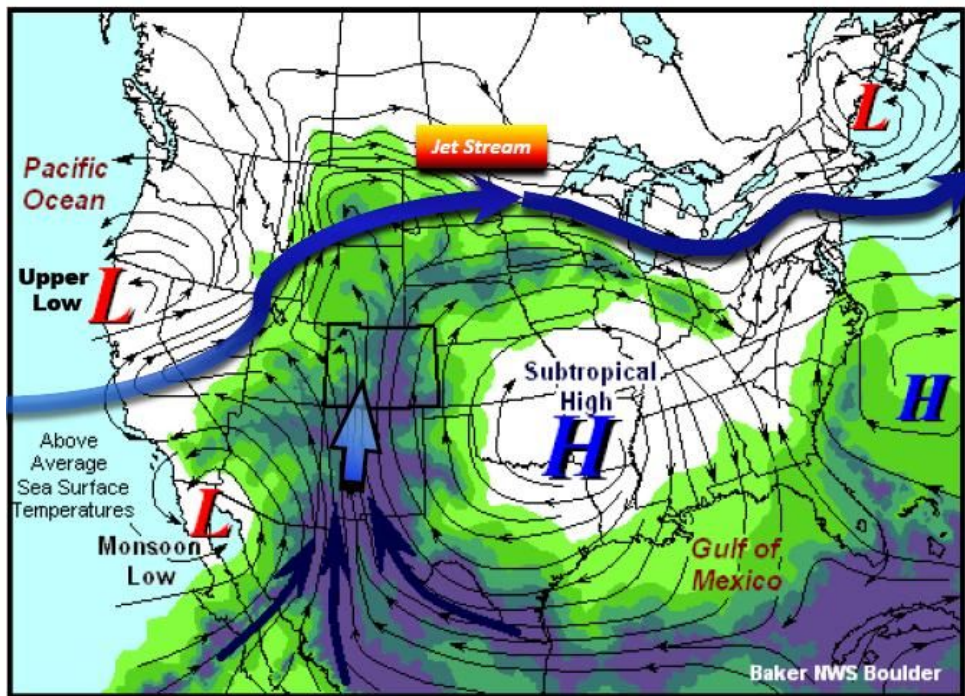
## What is the North American Monsoon?

The **North American Monsoon** (or NAM) is a **seasonal shift in the wind pattern** and is characterized by an area of upper atmospheric high pressure that rotates anti-cyclonically (clockwise) and allows for continuous moisture to flow from the Gulf of California and the Gulf of America into the normally arid southwest region of the country. This influx of moisture will promote daily thunderstorm activity, mainly over the mountainous regions where air is forced to rise.





# July Safety Information: Monsoon and Flash Floods



- The NAM ebbs and flows from day to day and year to year, and typically **ramps up in Colorado in July and persists through August.**
- The position of the center of the upper high pressure determines where thunderstorms will occur, and whether they will reorganize and persist each day.
- The best monsoonal moisture will work into Colorado when the center of the subtropical high is in place across the southern High Plains.
- **“Monsoon Season”** in Colorado is characterized by slow moving thunderstorms that produce **prodigious amounts of lightning, torrential rainfall, and flash flooding.**

Graphic from Colorado Climate Center and NWS BOU Mike Baker





# July Safety Information: Monsoon and Flash Floods



**Flash Flooding in Manitou Springs, July 2025.** Photo courtesy of David Pamplin, via KRDO 13 News.

## Key Characteristics of Flash Flooding

- ❖ Typically caused by short-duration, but intense rain events
  - Occurs frequently in the summer months over urban areas and areas with complex terrain
  - Flow paths of flood waters can be unpredictable and often don't originate from stream channels
  - Areas impacted by Wildfires can see enhanced risk for Flash Flooding and Debris Flows
  
- ❖ **These types of floods can be very impactful and without much lead-time!**





# July Safety Information: Monsoon and Flash Floods

## Protect yourself from Flooding and High Water


### ❖ If a Flash Flood Warning is issued:


- ❖ Avoid Flooded areas, Never driver through flooded roadways!
- ❖ Seek higher ground
- ❖ Stay informed:
  - [weather.gov](https://www.weather.gov)
  - NOAA Wx Radio
  - [water.noaa.gov](https://water.noaa.gov)

## Flash Flood Warning

Valid Until  
5:30 PM MDT Wednesday  
July 16, 2025

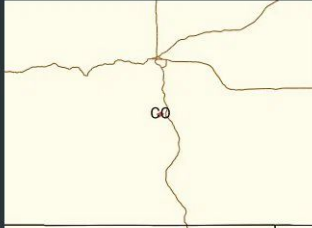

**Safety Information**



 Move immediately to higher ground!

 Quickly move away from the burn scar area!

**Potential Exposure**

Population: 8,767  
Schools: 3  
Hospitals: 0



   
@NWS Pueblo





# July Safety Information: Monsoon and Flash Floods

## FLOOD WATCH

A Flood Watch is issued when **flooding is possible.**

Stay tuned to trusted news sources and be ready to seek higher ground.

**Be Prepared.**



weather.gov

## FLOOD WARNING

A Flood Warning is issued when **flooding is happening or about to happen.**

Move to higher ground immediately!  
Never drive or walk through floodwaters.

**Take Action!**





# July Safety Information: Monsoon and Flash Floods

## Flash Flood EMERGENCY

### ISSUED FOR...

*Exceedingly rare situations when a severe threat to human life and catastrophic damage from a flash flood is happening or will happen soon.*



**This is a life-threatening situation! Do not attempt to travel unless you are fleeing an area subject to flooding or under an evacuation order.**

## Flash Flood WARNING

### ISSUED WHEN...

*Dangerous flash flooding is happening or will happen soon. Some roads will be flooded. Homes and businesses may flood.*



**Move to higher ground.  
Never drive through flooded roads.**





# July Safety Information: Monsoon and Flash Floods

## AFTER A WILDFIRE

### FLASH FLOODS AND DEBRIS FLOWS

Floods and debris flows happen quickly - within minutes of rainfall. **Prepare now!**

- Be aware of your surroundings and stay informed by having multiple ways to receive watches and warnings
- Follow any evacuation or other instructions from local officials
- If you have to shelter in place, get to the highest point inside your home. **Go up, not out!**



- Wildfires dramatically change the landscape and ground conditions, which can lead to a higher risk of flooding.
- When a wildfire burns a portion of a watershed, the resulting burn scar increases the potential for flooding until vegetation is re-established.
- The intense heat of wildfires changes the chemical composition of soil. This creates a situation where water cannot be absorbed into the soil (hydrophobic) and it runs off like pavement.
- The threat for flash flooding, mudslides and debris flows can exist 2 to 4 years after a wildfire.



# July Safety Information: Monsoon and Flash Floods

Do You Really Know How Deep the Water is?

12 inches of fast-moving water can carry away a small car.

6 inches of fast-moving water can knock over and carry away an adult.

18-24 inches of fast-moving water can carry away most large SUVs, vans and trucks.

WHEN FLOODED TURN AROUND DON'T DROWN

The illustration shows a flooded road with a blue car on the left and a dark SUV on the right. A man in a red plaid shirt stands on the left. A yellow diamond-shaped sign on a pole is in the center. Yellow lines connect text boxes to the car, the man, and the SUV. The background features mountains and a cloudy sky.





# July Safety Information: Monsoon and Flash Floods

## WFO Pueblo, Recent FFW Issuance Trends

### WFO Pueblo FFW Issuance by Month (including Burn Scar FFWs), 2010-2025

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010					1	2	22	12				
2011							6	10	3			
2012						2	12	1	1			
2013							11	23	13			
2014					3	4	52	15	2			
2015					13	14	10	10				
2016				1		5	12	18	1			
2017					8	7	27	9				
2018					1		34	13	1			
2019						9	26	18	4			
2020					7	10	33	17				
2021					16	6	80	23				
2022						6	39	44				
2023					10	29	16	10				
2024						9	9	8				
2025						3	37	20				

❖ **July and August** are the most active months for Flash Flooding

❖ **2025 saw 4th most FFWs, for Jul-Aug period, in last 15 years**

- Numerous high-intensity rain events, often over complex terrain
- Only two Burn Scar FFWs issued in 2025
- 2014, 2021 and 2022 saw more July-Aug FFWs

❖ Common thread among reported flash flood events:

**Sustained (20 minutes or more), 2-3+ inch/hour rain rates**





# July Safety Information: Monsoon and Flash Floods

## July Climate Statistics

### Alamosa



Average High: 83.3F



Average Low: 47.3F

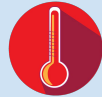


Normal Precip: 1.04"



Normal Snow: 0.0"

### Colorado Springs



Average High: 86.5F



Average Low: 58.2F



Normal Precip: 3.12"



Normal Snow: 0.0"

### Pueblo



Average High: 93.4F



Average Low: 61.0F



Normal Precip: 1.89"



Normal Snow: 0.0"





# July Safety Information: Monsoon and Flash Floods

## Notable Weather Events across south central and southeast Colorado in the month of July

**July 1, 1995:** 2.60 inches of rain fell in 45 minutes in the town of Walsh, in Baca county. Widespread street flooding resulted, with damage to an office building also reported.

**July 3, 1966:** A tornado moved through the Victor business district, damaging a garage, the Masonic Lodge, and a church.

**July 4, 1903:** The low temperature in Pueblo dropped to 41 degrees, the coldest minimum temperature on record for the city for the month of July.

**July 7, 1982:** A thunderstorm stalled over Baca county, dropping 6 inches of rain in less than an hour near the town of Walsh. Numerous basements were flooded, with large hail which accompanied the storm breaking windows and damaging roofs across the area.

**July 8, 1988:** Snow plows were called out to remove the 8 to 9 inches of hail that accumulated along Interstate 25 between the north and south gates of the Air Force Academy.

**July 11, 1990:** One of the costliest hailstorms in Colorado history strikes the Front Range from Colorado Springs north to Denver. Over \$600 million in damage is reported.

**July 14, 1996:** Thunderstorms produced high winds over the eastern plains of Colorado, with numerous trees and power lines downed along and north of Highway 50 from La Junta to east of Lamar. Numerous acres of corn and alfalfa were destroyed by the winds and accompanying hail, while Highway 50 east of Lamar was closed for a time due to trees blocking the road.

**July 17, 1891:** Newspaper accounts suggest a severe hail storm struck eastern El Paso county, with hailstones large enough to kill sheep which were unable to find shelter from the storm.





# July Safety Information: Monsoon and Flash Floods

Notable Weather Events across south central and southeast Colorado in the month of July

**July 20, 1980:** Slow moving thunderstorms produced widespread damage to farms across Crowley and Otero counties. Hail fell for as long as 30 minutes north of Rocky Ford, inflicting millions of dollars in damage to corn, watermelon and cantaloupe crops.

**July 20 2023:** Southern Colorado experienced a high impact severe weather event that led to an EF1 tornado on the west side of Pikes Peak (9500 ft) in Teller County, with hail 1 to 3 inches in diameter reported across the southeast Plains and straight line winds of 80 to 100 mph across Baca county.

**July 24, 1996:** Large hail damaged 3000 homes and 1800 vehicles over northern portions of Colorado Springs, with damage estimated at 8.7 million dollars.

**July 24, 1999:** 3 people were injured by a lightning flash approximately 100 yards west of the summit of West Spanish Peak. A 44-year old male experienced a direct hit, while his 41-year old male companion felt the side flash and was thrown against some rocks, suffering a skull fracture. A 7-year old boy also experienced the side flash and was thrown down and suffered facial cuts.

**July 25, 1999:** Heavy rain produced flooding along Saguache Creek, 10 miles northwest of the town of Saguache in the San Luis Valley. Numerous county roads were washed out, with damage to property along both sides of Highway 114.

**July 28, 1982:** Heavy rain fell across much of Colorado, with widespread reports of flooding. A portion of Highway 50 in Fremont County near Coaldale was washed out, while Fountain Creek south of Colorado Springs overflowed its banks and washed out a bridge. Street flooding was widespread in Colorado Springs, with 2.75 inches of rain in less than an hour reported in sections of the city.

**July 30, 2025:** Two high altitude tornadoes were reported, an EF1 6 WSW of Woodland Park in Teller County, and an EF0 7 SW of Westcliffe in Custer County.

