

National Weather Service Forecasts, Outlooks, Watches, and Warnings

Zone Forecasts

Every day, the National Weather Service in Flagstaff publishes general forecasts, or zone forecasts, for 19 different climatic regions in Coconino, Yavapai, Navajo, Apache, and northern Gila Counties. Zone forecasts give a good general overview of the weather for planning purposes.

Hazardous Weather Outlooks

When the possibility of hazardous weather exists, including flash flooding, a Hazardous Weather Outlook is issued to discuss these hazards.

Flash Flood Watches

A Flash Flood Watch will be issued if flash flooding becomes likely, but the timing and location of flooding is not certain or imminent. This is usually issued less than 36 hours before flash flooding occurs. Be prepared to respond quickly in case of flooding.

Flash Flood Warnings

When flash flooding is imminent or occurring, a Flash Flood Warning is issued. At this point, anyone in the warning area should take immediate precautions to protect life and property. Due to the rapid development of flash flooding, little time remains once a warning is issued, typically a few minutes to an hour. Be alert to signs of flash flooding, and, even if a warning is not in effect, take action if flash flooding occurs. *Advance warning is not possible for all flash floods.*

How to Get National Weather Service Forecasts, Outlooks, Watches, and Warnings

The National Weather Service disseminates weather information through weather radio, the internet, and telephone. See the back cover of this pamphlet for more details. On the internet, you can even monitor National Weather Service radar and warnings graphically in real-time.



Providing weather forecasts and warnings for the protection of life and property, and the enhancement of the national economy.

Sources for local weather information

NOAA's National Weather Service

- NOAA Weather Radio: Receivers available at many electronics stores.
Frequency of 162.400 MHz for Flagstaff
Other tuning frequencies for AZ listed at www.wrh.noaa.gov/fgz/office/nwr-freq.php?wfo=fgz
- NWS Flagstaff webpage: <http://weather.gov/flagstaff>
- Recorded Weather Message for Flagstaff and surrounding area: (928)774-3301

Other sources

- ADOT road conditions: (888) 411-7623 or 511

NOAA's National Weather Service
Flagstaff Weather Forecast Office
P.O. Box 16057
Bellefont, AZ 86015-6057

<http://weather.gov/flagstaff>
(928)556-9161

Northern Arizona Flash Floods Arizona's Deadliest Weather



Provided by the National
Weather Service, Flagstaff, AZ

Your official local source for
accurate and timely weather
warnings and forecasts.

Forecasts, warnings, & weather
info available on the web at:

<http://weather.gov/flagstaff>

Flash Flood Facts and Characteristics

Floods are the number one weather-related killer in the United States, with an average of 133 fatalities each year. Arizona is particularly susceptible to life threatening floods, with nearly twice the national rate of flooding related deaths adjusted by population. In addition, 31% of weather related fatalities in Arizona were due to floods - far above the national average of 20%.

A flash flood is a rapid rise in water that occurs in a short period of time after heavy rainfall, a dam or levee failure, or even an ice or debris jam or release on a river. Flash floods are characterized by high velocity flows of water, or occasionally, mud, rock, and other debris. Northern Arizona is particularly susceptible to flash flooding due to steep terrain, arid and sparsely vegetated environments, and wildfire burn scars. These areas frequently produce deadly fast water flows.

Northern Arizona is characterized by a dry climate with few year-round spring-fed streams. Most stream beds are normally dry, except when heavy runoff occurs. Many roadways cross these "dry washes" at "low-water crossings" which flow with water after rain. Since much of northern Arizona is sparsely populated with few alternate routes, transportation can be cut off to various communities when these normally dry washes flow with water. In addition, hikers frequent the beautiful stream-carved slot canyons of northern Arizona, and campers are often lured to set up camp in flat stream bottom areas. These can become death traps when flash floods occur.

Flash floods occur most often during the summer monsoon, when heavy thunderstorms frequent the area. However, they can occur at any time of year. The cover photo was taken in March!

Northern Arizona is dry...some of the time!



Flash Floods and Automobiles

- **Never attempt to drive across a flooded roadway.** Nearly half of all flash flood fatalities are auto-related, and about 75% of fatalities occur at night when it is more difficult to recognize the dangers of flash flooding.
- **Vehicles can be swept away in as little as 6 inches of moving water.** One to two feet of water will sweep away most vehicles. It is often difficult to estimate the depth of flood water.
- **Myth: My vehicle is too heavy to float and be swept away.** Fact: Even aircraft carriers weighing 97,000 tons float. Most vehicles weigh around 3,000 pounds. The same volume of water weighs around 25,000 pounds. When high enough water surrounds your car, it will float, and it will be swept away.
- **Floods often conceal damage to the roadway below.**

Flood water crossing a roadway in Northern Arizona.



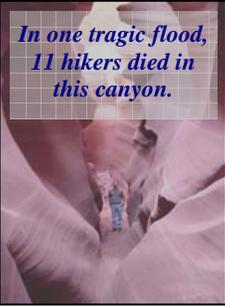
Damage to roadway from floodwaters.



- **Don't count on being rescued.** Rescue crews in Northern Arizona must cover a large, sparsely populated region. It takes time for them to arrive, and you have very little time when caught in a flash flood.
- **If you encounter a flooded roadway. STOP! Turn Around, Don't Drown!** Find another way to go, or wait for the water to subside.

Flash Floods, Hikers, and Campers

- **The possibility of rainfall and flash flooding should be taken seriously if you plan to hike the canyons of Northern Arizona.** Before you begin any hike, always check the weather forecast. Be prepared to change your plans if storms threaten.
- **Don't be so committed to your hike that you refuse to recognize a dangerous situation.** Northern Arizona is an incredibly diverse area with many things to do and see. When weather threatens, postponing your hike for a day or two and finding something else to do is a wise decision that could save your life.
- **During your hike, watch continually for changing weather conditions.** Remember, it need not be raining where you are hiking for a flash flood to occur. Hikers have been killed in flash floods generated by thunderstorms as far as 25 miles away. Signs of distant rainfall, such as thunder, lightning, and dark clouds, should be taken seriously. If rainfall threatens, get out of the canyon or get to high ground quickly. Before hiking, study maps to identify possible escape routes.
- **Never camp in a dry wash.** If you must camp near a wash, camp as high as possible and check for indications of past high water, such as stains on rock walls and debris lines. Remember, gravity always causes water to run downhill. Any canyon bottom, dry stream bed, or low point in the terrain, can potentially become a river when it rains.
- **To escape flash flooding, move uphill.** Do not stay in areas subject to flooding when water begins rising.
- **Do not attempt to cross a flowing stream on foot.** As little as 6 inches of rapidly flowing water can knock you off your feet. In addition, it is difficult to judge the depth of flood water.
- **Check with land management agencies** about flash flood hazards in their areas, and listen to their advice!



In one tragic flood, 11 hikers died in this canyon.