

## Debris Flow Hazards

- Debris flows occur when debris (trees, bushes, soil) are caught up in a flash flood
- Healthy vegetation typically holds the soil in place
- However, the lack of healthy vegetation after a fire promotes erosion
- This extra amount of erosion increases the chances for debris flows
- As seen in the image below, debris flows can happen at any time during increased periods of rainfall
- People can become trapped in vehicles or caught up in the debris flows
- Extra caution should always be taken during times of heavy rainfall



### National Weather Service

Weather Forecast Office  
Tucson, AZ

520 North Park Avenue Suite 304  
Tucson, AZ 85719

Phone: (520) 670-6526  
[www.weather.gov/tucson](http://www.weather.gov/tucson)

## How Flash Flooding Could Change After the Fires



Weather plays a huge role in the controlling of the fire behavior, but often people are uninformed about the lingering effects that fires can cause. This pamphlet examines how flash flooding risks may be heightened in and near burn areas.



*National Weather Service Tucson, AZ*

## How the Soils Change

- Burned soil creates a more water resistant surface
- The soils obtain a waxy characteristic near the surface
- The waxy surface repels water
- The water flows over the waxy surface and does not soak into the ground very well
- The flowing water reaches streams and washes more quickly than normal
- This trait of hydrophobic (burned and waxy) soils can remain for many years leading to flooding issues well into the future



This image from Oregon State University shows a drop of water on hydrophobic (burned and waxy) soil. The droplet does not soak into the soil because of the waxy coating.

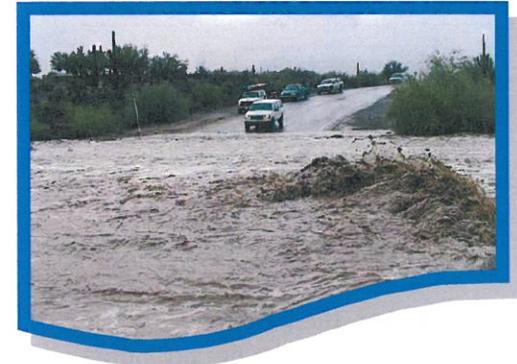
## Higher Flash Flooding Potentials

- Flash flooding is 5 times more likely after a wildfire
  - Every area is unique and may not experience this great of an increased flash flood risk
- The table below lists the highest annual rainfall rates for the indicated wildfires
  - These amounts are estimated based on data collected from nearby observing stations

Area	Duration	Annual Rainfall Rate for Flooding
Wallow	30 min	0.63 – 0.84 in
Monument	30 min	0.86 – 1.10 in
Horseshoe 2	30 min	0.81 – 1.11 in

- Rainfall rates near or above this table must be considered a threat for flash flooding
  - Rainfall less than these values may still lead to flash flooding
- During times of high intensity rainfall, remain informed on the weather by:
  - 1) NOAA Weather Radio
  - 2) [www.weather.gov/tucson](http://www.weather.gov/tucson)
  - 3) Local News Mediafor the latest information or warnings

## Flash Flooding Impacts



- Flooded streams and washes are common during the monsoon season
- This season additional flooding may occur due to increased run-off.
- Storm flooding will be an issue that will effect both motorists and pedestrians. Appropriate measures should be taken by all to avoid flood dangers.
- Just a reminder as you approach flooded washes and streams **“Turn Around, Don’t Drown.”**

