



## Death Valley Floods



*Large sections of Scotty's Castle Road and historic fencing were destroyed.*

### October 18 Storm

On the night of Sunday, October 18, 2015, park dispatch received word that visitors were stranded by flooding near Ubehebe Crater. Park rangers evacuated Mesquite Springs Campground and sheltered in place with 20 visitors in the northern end of the park. That night a park ranger watched power poles and metal dumpsters float out of Grapevine Canyon—an initial indicator of the flood's impacts to Scotty's Castle.

### Series of Record-Breaking October Storms

Over a two-week period in October, a series of unusual storms hit Death Valley National Park causing a patchwork of damage of varying intensities.

These storms dropped a total of 1.3 inches of precipitation in the center of the park at Furnace Creek. This set a record for the wettest October ever, in a location that averages about 2 inches of rain annually. Furnace Creek was spared the strongest parts of the storms, which affected the southern and northern parts of the park more severely.

Scotty's Castle received 4 inches of rain (the annual average at that location) in two days, with over 3 inches falling in just 5 hours. This catastrophic storm caused a flash flood of 3,200 cubic feet per second which deposited mud up to 4 feet thick in some places and carved down through the road. Hydrologists report this changed the shape of the canyon enough to alter how water will flow through it in the future.

### Floods Shape Death Valley

Rainfall amounts that seem moderate by the standards of less arid regions can have major effects in a desert environment. Partially due to sparse vegetation, desert soils tend to be hard-packed and don't soak up water quickly. Steep slopes in Death Valley also tend to shed rain rather than absorb it. Water ends up channeled in low spots such as canyons, causing flash floods.

Flash floods can cause very expensive damage to roads and infrastructure. They can also be dangerous. Never drive across active flooding and avoid hiking in canyons when there is a risk of rain.

Yet these same flash floods are a major force behind the stark beauty of Death Valley. Flash floods moved debris to create the alluvial fans that spill out of canyon mouths. Flood erosion created the Natural Bridge and carved the graceful curves of Mosaic Canyon.



*24 power poles that supplied electricity to Scotty's Castle were washed away.*

## Road Damage

In October 2015, over 500 miles of roads were closed due to flood damage in Death Valley National Park. National Park Service, CalTrans, and county road crews have re-opened most of these roads after clearing an estimated 500,000 tons of debris off road surfaces and filling in dangerous shoulder drop-offs.

Two roads are still closed:

- Scotty's Castle Road is open from CA-190 to Ubehebe Crater, but closed through Grapevine Canyon to Scotty's Castle. Repairs will be funded and contracted by Federal Highways Administration and should start in 2017.
- Badwater Road is open from CA-190 to Harry Wade, but closed through Jubilee Pass to the gateway town of Shoshone. Repairs are in progress and should be complete by mid-July 2016.

## Scotty's Castle Closed

Scotty's Castle is likely to be closed until at least 2019, depending factors such as funding. Mud has been cleared out of the buildings, but much work remains to be done:

- Visitor Center ( historic Garage/Longshed): The flood broke doors, broke windows, broke interior walls, and smashed one exterior wall.
- Hacienda building: interior damage due mud up to four feet thick deposited inside.
- Scotty's Castle (Main House & Annex): The roof leaked in several places, allowing moisture into the building.
- Museum collection: The archives, furnishings, and other artifacts were threatened by lack of heating, air conditioning, humidity control and fire suppression and are being moved to temporary storage off-site.
- Water system: The spring house, one of two reservoirs, and the pipeline were destroyed.
- Electricity: The power line has been replaced, but electrical systems in and between the buildings need repair or replacement.
- Sewer: The leach field was extensively damaged.
- Historic Fence: Over a mile of historic concrete fence posts were washed away.



*The Visitor Center's south wall was punched out by the force of the flood inside the building. Another section of exterior wall was pushed 18 inches off the foundation.*

## More Information

[www.nps.gov/deva](http://www.nps.gov/deva)

[www.facebook.com/DeathValleyNP](https://www.facebook.com/DeathValleyNP)

[www.facebook.com/DeathValleyRoadConditions](https://www.facebook.com/DeathValleyRoadConditions)

<https://www.youtube.com/watch?v=pgfpPBOOyo0>

[https://www.youtube.com/watch?v=ScMqi47A\\_mw](https://www.youtube.com/watch?v=ScMqi47A_mw)

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