

# Grand Canyon

National Park Service  
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Grand Canyon National Park  
Arizona



## Inside Grand Canyon

Fly-through Animation Transcript.

**Presented by NASA, the NPS, and the USGS**  
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One of earth's few landforms visible from space, the Grand Canyon of the Colorado River, slices through 277 miles of Northwestern Arizona. While there are certainly deeper canyons, nowhere else on earth has width, depth and length combined in such a way as to produce anything quite like this breathtaking chasm. Over the course of 6 million years, the canyon has been carved by the Colorado River. A mile deep, 277 miles long and up to 18 miles wide, this canyon is like none other. Grand Canyon begins at Lees ferry, which is where river runners today start their rafting adventure down the Colorado River. Here, the first of Grand Canyon's many rock layers is exposed. At 270 million years in age, the whitish-gray Kaibab limestone is the youngest in a series in of layered sedimentary rocks, each emerging as the river carves its way deeper into the Colorado Plateau.

Entering on the left, we see the Little Colorado River. At this point, the main Colorado River turns west, carvings through the Kaibab Uplift, exposing both the reddish-pink supergroup rocks and the dark rocks of the inner gorge.

The river divides the uplift into two plateaus, which form the North Rim and South Rim of the canyon. Flying over the South Rim and Grand Canyon Village, we enjoy a view of the canyon well documented by almost 4 1/2 million visitors each year. From the village, visitors gain access to the Bright Angel Trail, a popular pathway for canyon hikers, established here, because the Bright Angel Fault has fractured the otherwise impenetrable cliffs.

Following the Bright Angel Fault across the canyon to the north, we arrive at the North Rim, which reaches elevations over 9,000 feet. As we pass, note the Kaibab Monocline, which forms the eastern edge of the Kaibab Uplift.

We return to the river by way of Crystal Creek. In 1966, a large storm caused a debris flow to surge down Crystal Creek and empty into the Colorado River, creating overnight, one of the toughest rapids on the river.

Ahead is Powell Plateau, an erosional remnant of the North Rim named for John Wesley Powell, who, in 1869, was the first explorer to survey and map the canyon from one end to the other. At Powell Plateau, the character of the canyon changes. Here the Esplanade sandstone, one of the Paleozoic rock layers, forms a wide red rock bench within the canyon. Fossils in the Paleozoic rocks provide evidence of the region's dynamic geologic history. Shellfish, coral, reptile tracks, and fern fossils, reveal that ancient oceans, deserts and swamps once existed here.

On the left is Havasu Creek. This creek is famous for its blue-green water, stunning waterfalls and travertine pools. This is the traditional home of the Havasupai, or People of the Blue-green Waters, who still occupy the canyon today.

Further downriver, we approach Vulcan's Throne, the remnant of an ancient volcano. Beginning 630,000 years ago, lava poured forth over the canyon rim from volcanoes such as this, damning the River least 13 times. Each time the river was blocked, water collected behind the dams. Eventually, the weight and pressure of the water caused them to fail catastrophically. Remains of these dams can still be seen perched on the cliff walls. Volcanic Eruptions came to an end about 10,000 years ago.

Upon passing the lava flows, we pass the Hurricane Fault, one of a series of north to south trending faults that cut across the canyon. The Hurricane Fault was originally active during the Precambrian Era, but has been reactivated numerous times since. Like fossils, faults provide insight into Grand Canyon's complex geologic history.

Many fault oriented tributaries are visible in this section of the canyon, including Separation Canyon, so named because it was here that three of John Wesley Powell's men left the expedition in 1869, never to be seen again. Long before Powell visited the canyon, prehistoric peoples were living along the river. Rock art, cliff dwellings and potsherds serve as evidence of their presence here. Additionally, caves throughout the canyon contain the remains of large Ice Age mammals, such as giant ground sloth, camels, mastodons and horses. The discovery of Clovis-style spear points indicates that Ice Age hunters also dwelled within the canyon's walls 12,000 years ago.

Our 277 mile journey through Grand Canyon ends abruptly at the Grand Wash Cliffs. As we pull away, the full spectacular length of this grandest of all canyons on earth comes into view once again. The geologic story of this impressive feature is complicated, but with each day we learn something new. As time passes, the aged rocks will continue to be eroded. Although we can only imagine how this feature will appear in the next million years, its value as a geologic and visual masterpiece is apparent, and we will continue to protect it for generations to come.