

# NASA's Perseverance captures dust-filled Martian whirlwind

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The whirlwind. See video below. Credit: NASA/JPL-Caltech

The lower portion of a Martian dust devil was captured moving along the western rim of Mars' Jezero Crater by NASA's Perseverance rover on Aug. 30, 2023, the 899th Martian day, or sol, of the mission. The video, which was sped up 20 times, is composed of 21 frames taken four seconds apart by one of the rover's Navcams.

Much weaker and generally smaller than Earth's tornadoes, [dust devils](#) are one of the mechanisms that move and redistribute dust around Mars. Scientists study them to better understand the Martian atmosphere and improve their weather models.

Using data from the imagery, mission scientists determined that this particular dust devil was about 2.5 miles (4 kilometers) away, at a location nicknamed "Thorofare Ridge," and moving east to west at about 12 mph (19 kph). They calculated its width to be about 200 feet (60 meters). And while only the bottom 387 feet (118 meters) of the swirling vortex are visible in the camera frame, the scientists could also estimate its full height.

"We don't see the top of the dust devil, but the shadow it throws gives us a good indication of its height," said Mark Lemmon, a [planetary scientist](#) at the Space Science Institute in Boulder, Colorado, and a member of the Perseverance science team. "Most are vertical columns. If this dust devil were configured that way, its shadow would indicate it is about 1.2 miles (2 kilometers) in height."

Dust devils, which occur on Earth as well, form when rising cells of warm air mix with descending columns of cooler air. The Martian versions can grow to be much larger than those found on Earth. And while they are most prominent during the spring and [summer months](#) (Mars' northern hemisphere, where Perseverance is located, is currently in summer), scientists can't predict when they'll appear at a specific location. So Perseverance and its fellow NASA Mars rover Curiosity routinely monitor in all directions for them, taking images in black-and-white to reduce the amount of data sent to Earth.

Provided by NASA

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