

Parker Solar Probe lines up for final Venus flyby

September 9 2024, by Michael Buckley



Venus imaged by the Magellan spacecraft. Credit: NASA/JPL

NASA's Parker Solar Probe executed a short maneuver on Aug. 26 that kept the spacecraft on course for the mission's seventh and final planned Venus flyby on Nov. 6.

Operating on preprogrammed commands, Parker fired its small directional thrusters for about 17 seconds, changing its velocity by less than a mile per hour, and setting its trajectory some 386 miles (593 kilometers) closer to a targeted approach point about 240 miles (380 kilometers) above the Venusian surface. The mission operations team at the Johns Hopkins Applied Physics Laboratory (APL) in Laurel, Maryland, where Parker was designed and built, monitored the activity through NASA's Deep Space Network antenna station in Goldstone, California.

Yanping Guo, Parker Solar Probe mission design and navigation manager at APL, said precise positioning and timing are critical to the Venus flybys, in which Parker uses the planet's gravity to tighten its orbit around the sun. The upcoming flyby will be closer to Venus than the previous six gravity assists, and the final piece of a mission design that will swing Parker to within just 3.8 million miles of the sun's surface—the closest the spacecraft will come to our star.

"Venus 7 is the critical gravity assist for Parker Solar Probe to eventually achieve its minimum solar distance," Guo said, adding that the team will likely conduct an additional, smaller maneuver in late October or early November—after the mission's Sept. 30 solar encounter—to shore up the spacecraft's path to Venus.

After flying by Venus, Parker will make the first of at least three

planned passes at that unprecedented distance—while whizzing past the sun at a record 430,000 miles per hour—on Dec. 24, 2024.

Parker Solar Probe is currently in its 21st orbit, about to begin a science encounter that culminates on Sept. 30, 2024, with a [close approach](#) (known as perihelion) of about 4.51 million miles (7.26 million kilometers) from the solar surface.

More information: Follow the spacecraft's journey through the inner solar system on APL's [Parker Solar Probe website](#).

Provided by NASA

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