

After early struggles, NASA's ambitious mission to Titan is "on track" for launch

So how is Dragonfly doing now?

In recent years the Dragonfly mission has started to receive the funding and resources promised when NASA selected the mission six years ago. So how is it doing?

"The Dragonfly team is killing it," said Bobby Braun, who is head of APL's Space Exploration Sector, in an interview. "Probably the best part of my day is watching that team hit their milestones."

Both the spacecraft's hardware and software are progressing well, he said. Braun expressed confidence that the spacecraft is "on track" for a July 2028 launch date on a Falcon Heavy rocket. NASA confirmed this in a new update this week. On this timeline the spacecraft would arrive at Saturn's largest moon, Titan, in 2034.

This is a challenging mission for a number of reasons, beginning with getting down to the surface. Because Titan has a thick atmosphere, it will take about 90 minutes for the spacecraft to descend. "Curiosity had 7 minutes of terror when it landed on Mars," Braun said. "We're going to have 90 minutes of terror on Titan."

Unlike Mars, where there were multiple orbiters to collect high-resolution surface data about potential landing sites, NASA only has imagery from the Cassini spacecraft that

explored the Saturnian system from 2004 to 2017. Fortunately, this spacecraft deployed a small European probe, Huygens, that landed on Titan in 2005 and survived for about an hour. Dragonfly will draw on the experiences and atmospheric data collected by Huygens.

Among the key technologies on Dragonfly is an advanced Terrain Relative Navigation system to survey the surface and identify hazards. This will be useful not just during the initial landing but for subsequent flights as the rotocraft makes 20-minute jaunts across the surface, traveling a few kilometers at a time. Between each autonomous flight, the spacecraft will recharge its batteries using a radioisotope thermoelectric generator, or RTG power system. Dragonfly will need this power to transmit data directly from the surface of Titan back to Earth, as there will be no relay spacecraft in orbit around the moon.

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