A lunar lander launches from Florida for the first time since Apollo 17

Enlarge / A Falcon 9 rocket launches on Thursday night from Florida.

reader comments

109 with 61 posters participating

Share this story

A mild winter breeze blew along the Florida coast when the final Apollo mission roared into the sky shortly after midnight on December 7, 1972. More than half a million people turned out to watch Apollo 17 lift off despite the late hour. Imagine you were lucky enough to be among them.

After the rocket disappears and nighttime closes in, you're musing about when humans might return to deep space, when an aging drifter in a *Steppenwolf* t-shirt interrupts your reverie.

> *Won't see that again in our lifetimes.*
>
> *Huh?*
>
> *A rocket sending a lander to the Moon. Ain't gonna happen again for nearly 50 years.*
>
> *That's impossible. NASA is talking about going to Mars in a decade or so.*
>
> *Well, the next rocket from here that's sending a lander to*

the Moon won’t launch until 2019.

I can’t believe that. And how can you know that—

And that rocket will already have flown twice.

What? Our rockets fall into the ocean.

Yeah, well, there will be a boat to catch this one.

I think I’ve got to be going.

Oh, and the rocket will be built by a dude from South Africa, and the lander will carry an Israeli flag.

You’d probably better call a cab to get home, old-timer.

In December 1972, Elon Musk was one year old, living in South Africa. Israel was just three months removed from the Munich massacre, in which 11 members of its Olympic team were taken hostage and killed during the summer games. And yet nearly five decades later on Thursday night, Musk’s company, SpaceX, would link up with a private Israeli effort to launch a small lander to the Moon’s surface.

This really has not happened since Apollo 17. A NASA lunar mission named LCROSS did fly from Florida in 2009 on an Atlas V rocket, but it carried an impactor designed to crash into the Moon, as opposed to a spacecraft such as SpaceIL’s Beresheet vehicle, which launched Thursday night and was built to make a soft landing and return images, video, and scientific data.

NASA eyes the Moon

This launch felt special. What would have seemed crazy in 1972 seems increasingly like the norm today: a private mission to the Moon launched on a reusable rocket. It *felt* like the future, but it’s not clear whether our future in space is

sustainable.

Truthfully, any Western return to the lunar surface, for exploration, science, or commercial purposes, must almost be certainly led by NASA and its $20 billion-per-year budget. And NASA, under the leadership of Jim Bridenstine, has taken some notable steps toward embracing the new, vibrant reality of commercial spaceflight.

The space agency has declared that it wants to send humans back to the Moon, to live and work there and explore whether its water resources might be tapped. Moreover, it will support the efforts of (mostly) fledgling companies who aspire to deliver small spacecraft like the Israeli lander to the surface of the Moon by buying services from them for the agency's own scientific experiments. Earlier on Thursday, in fact, the agency announced the first dozen experiments it would like to send to the Moon this year.

Perhaps more importantly, earlier this month, NASA invited the industry to share its ideas for how companies would develop a human-rated lander that would entail three parts—an in-space tug, a large lander, and an ascent vehicle to get from the lunar surface back to low lunar orbit.

Yet this represented a very traditional approach to lunar exploration, similar to Apollo, albeit with astronauts making a pit stop at a Gateway orbiting the Moon. NASA has set the rules, outlined how it prefers to get back to the Moon, and then within these narrow confines asked industry how they would fulfill this mandate. Clearly, the smart industrial contractors will build specifically to satisfy NASA's needs because they want to win the agency's multibillion-dollar contracts.

But perhaps there is a lesson in Thursday night's launch from Florida—a private launch, on a private rocket that few would have seen coming even a decade ago. Perhaps NASA shouldn't

delineate what it thinks the best way to return to the Moon is and ask private industry to fall in line. Perhaps, instead, the agency might say, *We want to send people back to the Moon to do interesting things in the next decade and not break the bank. How would you do it?*

NASA would then have the special expertise to evaluate what might work and what might not.

Other ideas

United Launch Alliance, for example, has some interesting concepts with a reusable upper stage that could go back and forth between Earth and the Moon, and it has worked with Masten Space Systems on an innovative lunar lander named XEUS. But the truth is that United Launch Alliance won't pitch these innovative, cost-saving ideas to NASA because the corporate owners of the company, Lockheed Martin and Boeing, want to fulfill NASA's narrow contract demands.

Blue Origin has some innovative landing ideas, too. But instead of proposing something that could launch on its reusable New Glenn rocket, the company will probably be compelled to design architecture that will meet NASA's desire to use the Space Launch System rocket and Orion spacecraft and stop at the Gateway.

Then there's SpaceX, which wants to bypass the Gateway concept entirely, as well as the three-part lander system. The company says it is developing a Starship that could land on the Moon, return to Earth, and be refurbished to do it all again. Perhaps this is nonsense, but a few years ago, landing a rocket on an autonomous drone ship seemed pretty nonsensical, too. For those on the outside, it's difficult to know.

When he announced NASA's lunar lander program at an industry day on Valentine's Day a week ago, NASA's chief of human spaceflight, William Gerstenmaier, said SpaceX was welcome to

submit alternative ideas. However, he said, vehicles that did not fit the agency’s specific architecture would not be eligible for the current funding opportunity.

It does seem crazy that nearly 47 years have passed since the last time that a lunar lander blasted off from the Florida coast. But perhaps it will take a few more crazy ideas, like reusable rockets and Israeli lunar aspirations, to make a Moon return affordable and sustainable.

https://arstechnica.com/?p=1462359