## NASA LAUNCHES MARS ROVER PERSEVERANCE TO LOOK FOR SIGNS OF ANCIENT LIFE

Relevant for: Science & Technology | Topic: Space Technology & related matters

An Atlas V rockets lifts off from the Kennedy Space Center with NASA's Perseverance rover on its way to Mars, on July 30, 2020, at Cape Canaveral, Florida. | Photo Credit: <u>AP</u>

The biggest, most sophisticated Mars rover ever built — a car-size vehicle bristling with cameras, microphones, drills and lasers — blasted off for the red planet on July 30 as part of an ambitious, long-range project to bring the first Martian rock samples back to Earth to be analysed for evidence of ancient life.

NASA's Perseverance rode a mighty Atlas V rocket into a clear morning sky in the world's third and final Mars launch of the summer. China and the United Arab Emirates got a headstart last week, but all three missions should reach their destination in February after a journey of seven months and 300 million miles (480 million kilometres).

The plutonium-powered, six-wheeled rover will drill down and collect tiny geological specimens that will be brought home in about 2031 in a sort of interplanetary relay race involving multiple spacecraft and countries. The overall cost: more than \$8 billion.

NASA's science mission chief, Thomas Zurbuchen, pronounced the launch the start of humanity's first round trip to another planet. "Oh, I loved it, punching a hole in the sky, right? Getting off the cosmic shore of our Earth, wading out there in the cosmic ocean," he said. "Every time, it gets me."

In addition to addressing the life-on-Mars question, the mission will yield lessons that could pave the way for the arrival of astronauts as early as the 2030s.

"There's a reason we call the robot Perseverance. Because going to Mars is hard," NASA Administrator Jim Bridenstine said just before liftoff. "It is always hard. It's never been easy. In this case, it's harder than ever before because we're doing it in the midst of a pandemic."

The U.S., the only country to safely put a spacecraft on Mars, is seeking its ninth successful landing on the planet, which has proved to be the Bermuda Triangle of space exploration, with more than half of the world's missions there burning up, crashing or otherwise ending in failure.

China is sending both a rover an orbiter.

The UAE, a newcomer to outer space, has an orbiter en route.

It's the biggest stampede to Mars in spacefaring history. The opportunity to fly between Earth and Mars comes around only once every 26 months when the planets are on the same side of the sun and about as close as they can get.

Launch controllers wore masks and sat spaced apart at the Cape Canaveral control centre because of the coronavirus outbreak, which kept hundreds of scientists and other team members away from Perseverance's liftoff.

That was overwhelming. Overall, just 'Wow!' said Alex Mather, the 13-year-old Virginia

schoolboy who proposed the name Perseverance in a NASA competition and watched the launch in person with his parents.

The launch went off on time at 7:50 a.m. despite a 4.2-magnitude earthquake 20 minutes before liftoff that shook Southern California, the site of NASA's Jet Propulsion Laboratory, which is overseeing the rover mission.

If all goes well, the rover will descend to the Martian surface on February 18, 2021, in what NASA calls seven minutes of terror, in which the craft goes from 12,000 mph (19,300 kph) to a complete stop, with no human intervention whatsoever. It is carrying 25 cameras and a pair of microphones that will enable Earthlings to vicariously tag along.

Perseverance will aim for treacherous unexplored territory: Jezero Crater, riddled with boulders, cliffs, dunes and possibly rocks bearing signs of microbes from what was once a lake more than 3 billion years ago. The rover will store half-ounce (15-gram) rock samples in dozens of super-sterilised titanium tubes.

It also will release a mini helicopter that will attempt the first powered flight on another planet, and test out other technology to prepare the way for future astronauts. That includes equipment for extracting oxygen from Mars' thin carbon-dioxide atmosphere.

The plan is for NASA and the European Space Agency to launch a dune buggy in 2026 to fetch the rock samples, along with a rocket ship that will put the specimens into orbit around Mars. Then another spacecraft will capture the orbiting samples and bring them home.

Samples taken straight from Mars, not drawn from meteorites discovered on Earth, have long been considered the Holy Grail of Mars science, according to NASA's original and now-retired Mars czar, Scott Hubbard.

To definitively answer the profound question of whether life exists — or ever existed — beyond Earth, the samples must be analysed by the best electron microscopes and other instruments, far too big to fit on a spacecraft, he said.

"I've wanted to know if there was life elsewhere in the universe since I was 9 years old. That was more than 60 years ago," the 71-year-old Hubbard said from his Northern California cabin. "But just maybe, I'll live to see the fingerprints of life come back from Mars in one of those rock samples."

Mr. Bridenstine said, "There is nothing better than bringing samples back to Earth where we can put them in a lab and we can apply every element of technology against those samples to make determinations as to whether or not there was, at one time, life on the surface of Mars."

Two other NASA landers are also operating on Mars — 2018's InSight and 2012's Curiosity rover. Six other spacecraft are exploring the planet from orbit: three from the U.S., two from Europe and one from India.

You have reached your limit for free articles this month.

To get full access, please subscribe.

Already have an account ? Sign in

Start your 14 days trial now. Sign Up

Find mobile-friendly version of articles from the day's newspaper in one easy-to-read list.

Move smoothly between articles as our pages load instantly.

Enjoy reading as many articles as you wish without any limitations.

A one-stop-shop for seeing the latest updates, and managing your preferences.

A select list of articles that match your interests and tastes.

We brief you on the latest and most important developments, three times a day.

\*Our Digital Subscription plans do not currently include the e-paper ,crossword, iPhone, iPad mobile applications and print. Our plans enhance your reading experience.

Dear reader,

We have been keeping you up-to-date with information on the developments in India and the world that have a bearing on our health and wellbeing, our lives and livelihoods, during these difficult times. To enable wide dissemination of news that is in public interest, we have increased the number of articles that can be read free, and extended free trial periods. However, we have a request for those who can afford to subscribe: please do. As we fight disinformation and misinformation, and keep apace with the happenings, we need to commit greater resources to news gathering operations. We promise to deliver quality journalism that stays away from vested interest and political propaganda.

Dear subscriber,

Thank you!

Your support for our journalism is invaluable. It's a support for truth and fairness in journalism. It has helped us keep apace with events and happenings.

The Hindu has always stood for journalism that is in the public interest. At this difficult time, it becomes even more important that we have access to information that has a bearing on our health and well-being, our lives, and livelihoods. As a subscriber, you are not only a beneficiary of our work but also its enabler.

We also reiterate here the promise that our team of reporters, copy editors, fact-checkers, designers, and photographers will deliver quality journalism that stays away from vested interest and political propaganda.

Suresh Nambath

Please enter a valid email address.

A video explainer on the anti-body test and RT-PCR test

Subscribe to The Hindu now and get unlimited access.

Already have an account? Sign In

Start your 14 days trial now Sign Up

You can support quality journalism by turning off ad blocker or purchase a subscription for unlimited access to The Hindu.

Sign up for a 30 day free trial.

## **END**

Downloaded from crackIAS.com © Zuccess App by crackIAS.com