

THE ISRAELI MOON LANDING APRIL 11

Israel's Beresheet spacecraft did attempt the country's 1st-ever and 1st commercial landing on the Moon on Thursday, April 11. The landing is expected between 19:00 and 20:00 UTC (2 to 3 p.m. CDT). **Unfortunately the spacecraft crashed on landing, but here is the lead-up to the event.**

Israeli space engineers are preparing to make history on Thursday (April 11, 2019), when they hope to help their country become the fourth nation to land on the Moon. **The spacecraft, which is orbiting the Moon now, is called Beresheet, which means "in the beginning" in Hebrew.**

The lander is scheduled to set down in the Sea of Serenity, also known as Mare Serenitatis. The landing is expected between 19:00 and 20:00 UTC (2 to 3 p.m. CDT) on Thursday, April 11, 2019.

This wouldn't be just the first landing for Israel. It would also be the first touchdown on the Moon by a commercial spacecraft as well, with the mission being managed by the non-profit organization SpacEL.

Meanwhile, as we wait for the landing itself, Beresheet has already returned some beautiful photos of the far side of the moon, and of Earth itself, which were posted on the company's Twitter stream:

Beresheet, designed by SpacEL and built by Israel Aerospace Industries (IAI), was launched on February 21, 2019, on a SpaceX Falcon 9 rocket, and the mission has been pretty much flawless so far. The attempted landing will be the first by a private organization of any country, and the fourth nation overall, to land on the Moon. **Morris Kahn**, chairman of SpacEL, explained:

The lunar capture is a historic event in and of itself, but it also joins Israel in a seven-nation club that has entered the Moon's orbit. A week from today we'll make more history by landing on the Moon, joining three super powers who have done so.

Today I am proud to be an Israeli.

A crucial six-minute engine burn was performed on April 4, in order to reduce Beresheet's velocity relative to the Moon by about 1,000 kph – just enough for lunar gravity to capture the spacecraft and prevent it from simply sailing past the moon.

Beresheet's orbit now has a high point of 10,000 km and a low point of 500 km above the Moon's surface. It will continue to settle into a circular orbit of about 200 km, before it begins its descent.

As **Ido Anteby**, SpacEL CEO, said in a statement:

After six weeks in space, we have succeeded in overcoming another critical stage by entering the moon's gravity. We still have a long way until the lunar landing, but I'm convinced our team will ... land the first Israeli spacecraft on the moon, making us all proud.



Stunning partial view of the far side of the moon from the Beresheet spacecraft on April 4, 2019. That object in the distance is the Earth!



Beresheet-lander-SpacEL-2019

Anteby also noted that Beresheet will be landing autonomously, with no help from mission controllers back on Earth:

The spacecraft will land autonomously. Actually, we'll send a command to land, and it will then land by itself. We have never tested it, so we are not sure how it will work. We have done a lot of experiments and a lot of tests in the lab using a simulator, but we have never tested the spacecraft to land on the Moon.

A magnetometer will measure the local magnetic field before the main engine shuts down only 5 metres above the surface. The spacecraft will then free-fall the rest of the way to the surface.

According to Anteby:

In order to begin the landing procedure, we need to give the spacecraft the exact location of where it is. This accurate positioning is very risky. We also have a special sensor, a laser sensor. This is the first time that this sensor will be on the moon, so it is very risky, too.

Beresheet has a high-resolution camera to take panoramic images of its landing site, as well as a "time capsule" containing photos and cultural artifacts, including a copy of the Bible engraved on a coin-sized disk.

The landing will be broadcast live on YouTube, Facebook and the SpacEL website. A lot is riding on this mission for Israel, as **Yonatan Winetraub**, co-founder of SpacEL, surmised:

Until today, three superpowers have soft landed on the moon. We thought it's about time for a change. We want to get little Israel all the way to the Moon. This is the purpose of SpacEL.

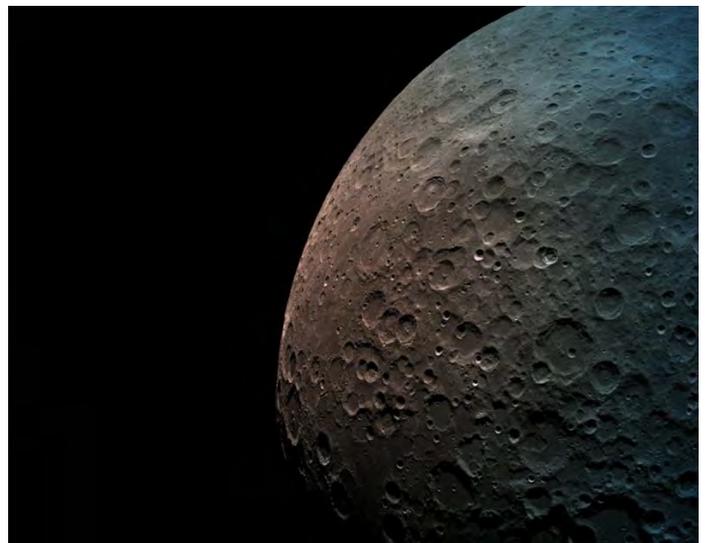
AND THEN

*"We had a failure in the spacecraft," said **Opher Doron**, general manager of Israel Aerospace Industries space division, builder of the Beresheet lunar lander. "We unfortunately have not managed to land successfully."*

With Israeli Prime Minister Benjamin Netanyahu and a throng of dignitaries and well-wishers looking on, the small Israeli spacecraft attempted to pull off the first privately-funded non-superpower moon landing Thursday, but the lander apparently crashed to the surface after engine trouble and communications glitches during the final descent.

It was not immediately known what went wrong. The descent, from an altitude of about 15 miles, began on time just after 3 p.m. EDT. At that point, the spacecraft was about 500 miles from the intended landing site on a broad plain known as **Mare Serenitatis**.

AK, with EarthSky and Wikipedia Notes



Another great view of the far side of the Moon from Israel's Beresheet spacecraft.

