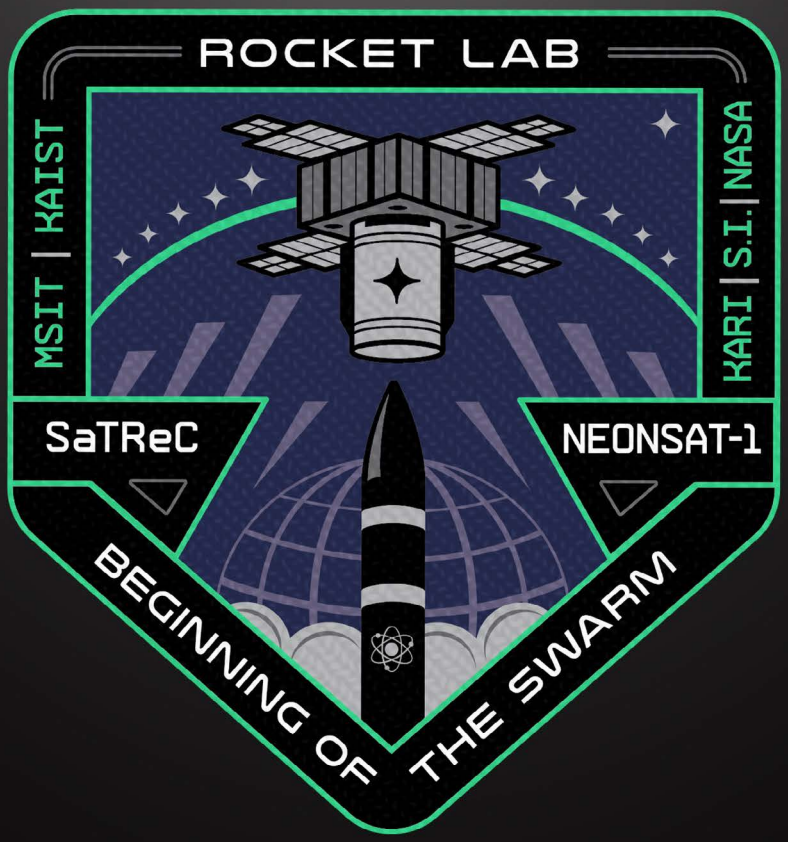


BEGINNING OF THE SWARM

PRESS KIT | LAUNCHING NO EARLIER THAN 24 APRIL 2024

Rocket Lab USA, Inc.
rocketlabusa.com

ROCKETLAB

LAUNCH INFORMATION

LAUNCH SITE

Launch Complex 1 – Pad B
Mahia, New Zealand.

LAUNCH WINDOW

Launch window opens April 24th 2024.

Time Zone	Window Open
EDT	18:00 – 19:00
UTC	22:00 – 23:00
PDT	15:00 – 16:00
NZST	10:00 – 11:00

Back up opportunities are available throughout April and into May should the launch date need to be updated for any reason.

ORBIT

520km (NEONSAT-1)
1,000km (ACS3)

SATELLITES

2

NEONSAT-1 & ACS3

INCLINATION

97

Degrees

CUSTOMER

KAIST & NASA

MISSION OVERVIEW

About ‘Beginning Of The Swarm’

> Rocket Lab will launch a mission for the Korea Advanced Institute of Science and Technology (KAIST) and NASA.

NASA ACS3 Satellite

Electron Launch from Mahia, New Zealand

NEONSAT-1 Satellite

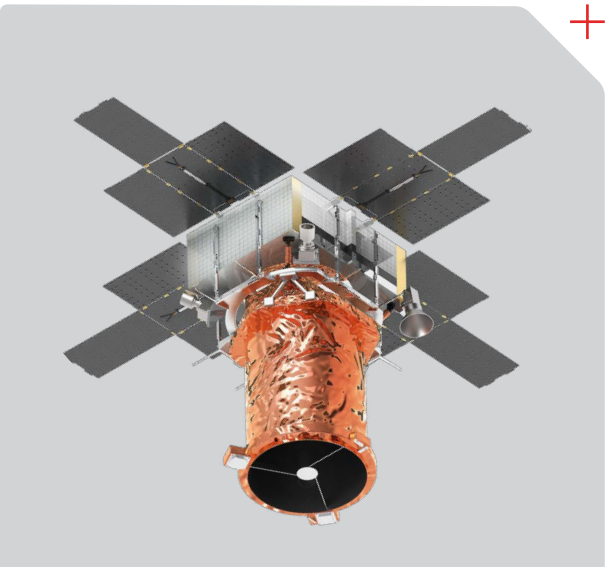
Rocket Lab will launch two satellites for two separate customers on Electron’s 47th mission.

The ‘Beginning Of The Swarm’ mission is scheduled to launch from Pad B at Launch Complex 1 in Mahia, New Zealand. Electron will carry two satellites for two separate customers: NEONSat-1, an Earth observation satellite for the Satellite Technology Research Center (SaTReC) at the Korea Advanced Institute of Science and Technology (KAIST), and NASA’s Advanced Composite Solar Sail System (ACS3).

> Electron will deploy the satellites to two separate orbits during the same launch. The first payload deployment will occur at a 520km circular Earth orbit, before the second payload will be deployed at 1,000km.

The capability of Electron’s Kick Stage to perform multiple engine burns in space and deploy individual satellites to unique orbits is critical to this mission. After the first deployment, the Kick Stage will ignite its Curie engine again to perform an apogee raise to 1,000km. Once in this phasing orbit, the Curie will ignite a third time to circularize before deploying the solar sail demonstration spacecraft. The Kick Stage will then ignite Curie a fourth and final time to perform a orbit lowering burn that returns the Kick Stage closer to Earth, speeding up its eventual deorbit and removal from space to support a more sustainable space environment.

PAYLOADS ONBOARD ELECTRON



NEONSAT-1 Satellite

NASA ACS3 Satellite

NASA ACS3 Satellite Flight Sail Test

NEONSAT-1

The primary payload for this mission, NEONSAT-1, is an Earth observation satellite with a high-resolution optical camera designed to monitor for natural disasters along the Korean Peninsula by pairing its images with artificial intelligence. NEONSAT-1 is the first satellite developed under the NEONSAT program by SaTReC and KAIST, Korea's leading university in science and technology, which developed and operated Korea's very first satellite KITSAT-1 more than 30 years ago. Other NEONSAT satellites are planned to be launched in 2026 and 2027 to build out the NEONSAT constellation. The program is a collaboration across multiple Korean academic, industry, and research institutions including SaTReC in KAIST, which is leading the program's system design and engineering; the Satrec Initiative, a Korean satellite manufacturer that has successfully developed seven previous remote sensing satellites for low Earth orbit; and the Korea Aerospace Research Institute (KARI), which is managing the mission's ground segments and technology supervision for the NEONSAT program. NEONSAT is funded by the Korean government's Ministry of Science and ICT (MSIT).

Advanced Composite Solar Sail System (ACS3)

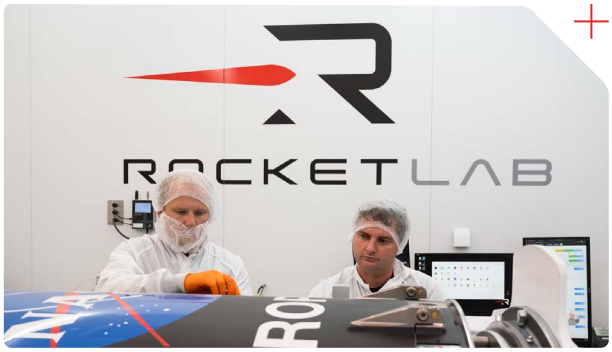
NASA's ACS3 is a technology demonstration of new materials and deployable structures for solar sail propulsion systems that use sunlight to propel the spacecraft. Much like a sailboat is powered by wind pushing against a sail, solar sails employ the pressure of sunlight for propulsion, eliminating the need for conventional rocket propellant. The mission plans to test the deployment of new composite booms that will unfurl the solar sail to measure approximately 30 feet per side, or about the size of a small apartment in total. Flight data obtained during the demonstration will be used for designing future larger-scale composite solar sail systems for space weather early warning satellites, asteroid and other small body reconnaissance missions, and missions to observe the polar regions of the Sun. The ACS3 was designed and built at NASA's Langley Research Center in Hampton, Virginia, and the technology demonstration is managed and funded by the Small Spacecraft Technology program at and with NASA's Ames Research Center in Silicon Valley. NASA's Science Mission Directorate, interested in larger solar sail missions in the future, is funding an extended operations component to execute a series of maneuvers to raise and lower the spacecraft's orbit, demonstrating the practicality of solar sailing.

LAUNCH SITE OVERVIEW

Rocket Lab Launch Complex-1
Mahia, New Zealand

> ‘Beginning Of The Swarm’ will lift off from Launch Complex 1 on New Zealand’s Mahia Peninsula.

An FAA-licensed spaceport, Launch Complex 1 can provide up to 120 launch opportunities every year. From the site it is possible to reach orbital inclinations from sun-synchronous through to 30 degrees, enabling a wide spectrum of inclinations to service the majority of the satellite industry’s missions to low Earth orbit.



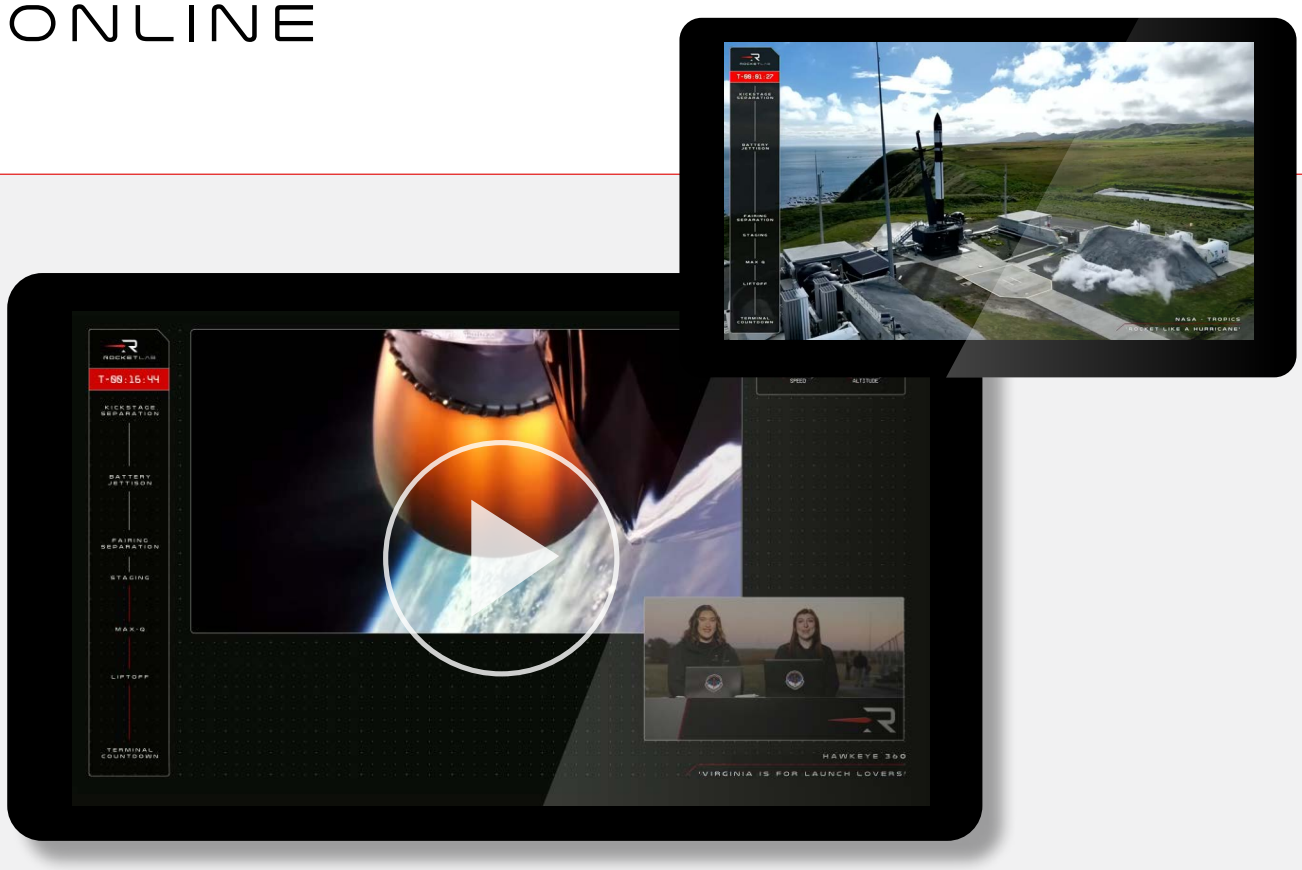
Located within Launch Complex 1 are Rocket Lab’s private range control facilities, two 100K satellite cleanrooms, a launch vehicle assembly facility which can process multiple Electrons at once, and administrative offices.

Operating a private orbital launch site alongside its own range and mission control centres allows Rocket Lab to reduce the overhead costs per mission, resulting in a cost-effective launch service for satellite operators.

In addition to Launch Complex 1, Rocket Lab operates an additional launch site, Launch Complex 2, at the Mid-Atlantic Regional Spaceport within NASA’s Wallops Flight Facility on Virginia’s Eastern Shore. Launch Complex 2 can support up to 12 missions per year.

By operating two launch complexes in two hemispheres, Rocket Lab provides customers with flexible, responsive launch opportunities.

VIEWING A LAUNCH ONLINE



LIVE STREAM

The live stream is viewable at:

rocketlabusa.com/live-stream

LAUNCH FOOTAGE & IMAGES

Images and footage of "Beginning Of The Swarm" launch will be available shortly after a successful mission at:

www.flickr.com/photos/rocketlab

UPDATES

For information on launch day visit:

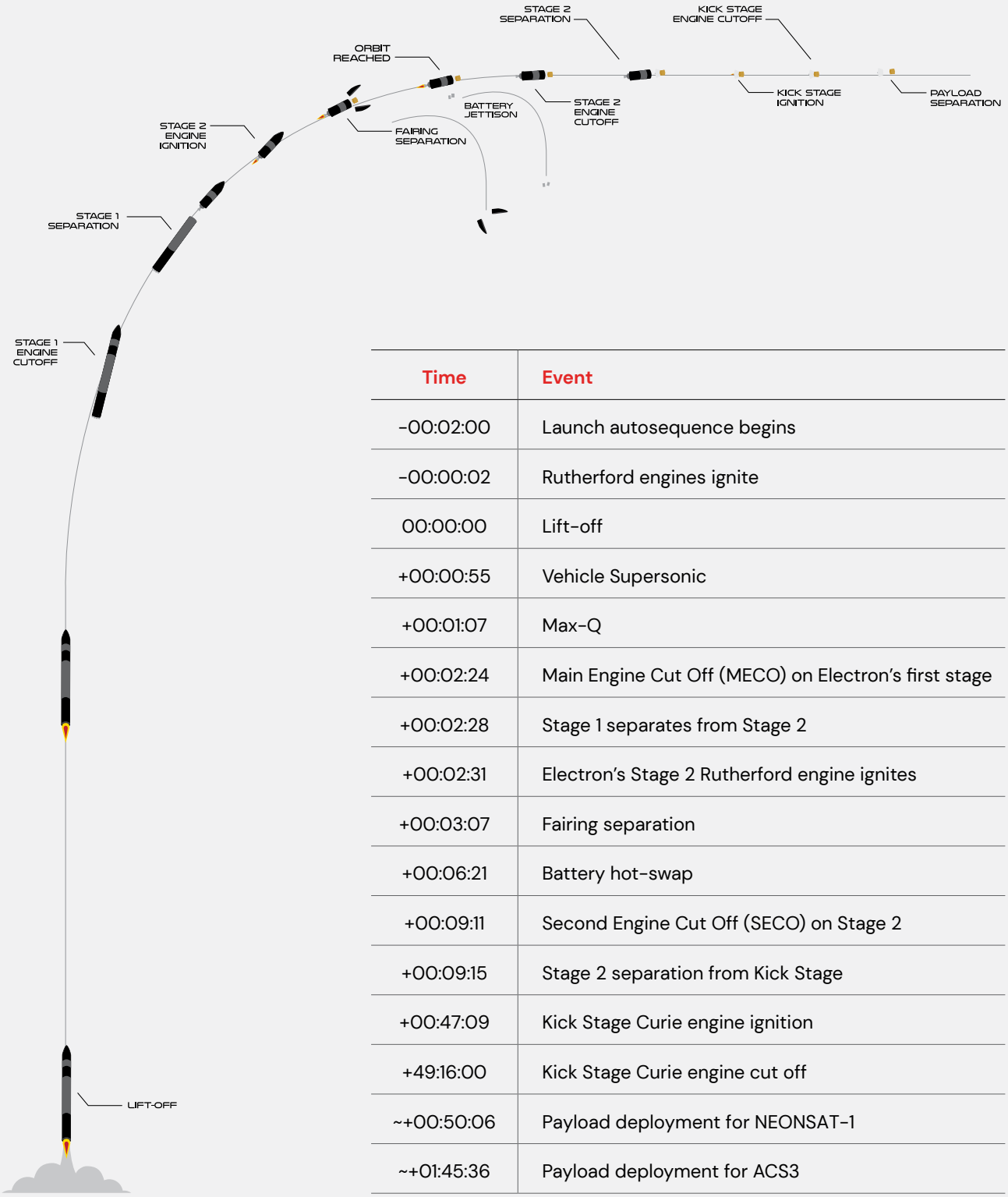
rocketlabusa.com/next-mission

FOLLOW ROCKET LAB:

@RocketLab

facebook.com/RocketLabUSA

TIMELINE OF LAUNCH EVENTS



Time	Event
-00:02:00	Launch autosequence begins
-00:00:02	Rutherford engines ignite
00:00:00	Lift-off
+00:00:55	Vehicle Supersonic
+00:01:07	Max-Q
+00:02:24	Main Engine Cut Off (MECO) on Electron's first stage
+00:02:28	Stage 1 separates from Stage 2
+00:02:31	Electron's Stage 2 Rutherford engine ignites
+00:03:07	Fairing separation
+00:06:21	Battery hot-swap
+00:09:11	Second Engine Cut Off (SECO) on Stage 2
+00:09:15	Stage 2 separation from Kick Stage
+00:47:09	Kick Stage Curie engine ignition
+49:16:00	Kick Stage Curie engine cut off
~+00:50:06	Payload deployment for NEONSAT-1
~+01:45:36	Payload deployment for ACS3

ELECTRON LAUNCH VEHICLE

OVERALL

LENGTH
18m

DIAMETER (MAX)
1.2m

STAGES
2 + Kick Stage

VEHICLE MASS (LIFT-OFF)
13,000kg

MATERIAL/STRUCTURE
Carbon Fiber Composite/Monocoque

PROPELLANT
LOX/Kerosene

PAYLOAD

NOMINAL PAYLOAD
320kg / 440lbm To 500km

FAIRING DIAMETER
1.2m

FAIRING HEIGHT
2.5m

FAIRING SEP SYSTEM
Pneumatic Unlocking, Springs

STAGE 2

PROPULSION
1x Rutherford Vacuum Engine

THRUST
5800 LBF Vacuum

ISP
343 Sec

INTERSTAGE

SEPARATION SYSTEM
Pneumatic Pusher

STAGE 1

PROPULSION
9x Rutherford Sea Level Engines

THRUST
5600 LBF Sea Level (Per Engine)

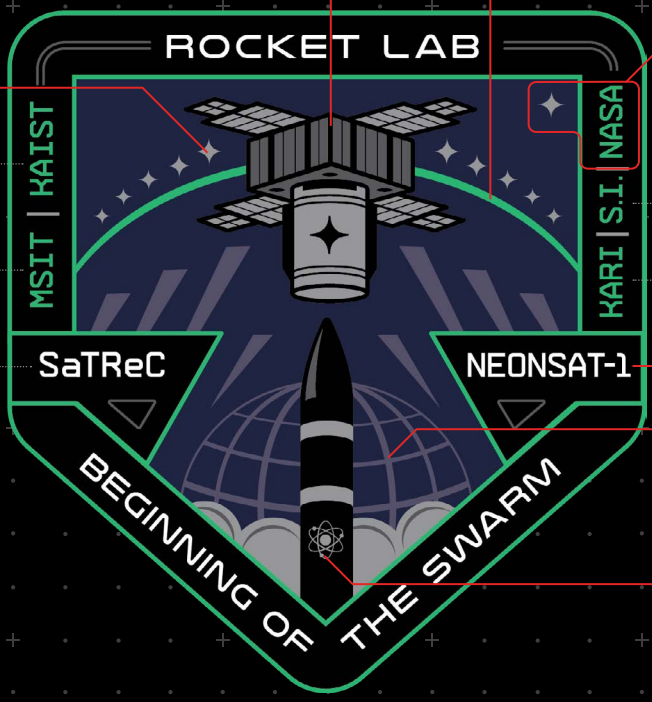
ISP
311 Sec

MISSION PATCH ANATOMY

'Beginning Of The Swarm'

NEONSat-1 is the first of 11 satellites, (the 'Beginning Of The Swarm').

There is one star positioned on the satellite, with the remaining ten on the green line symbolizing the payloads to come.



NEONSAT-1

The green orbital line is a reference to the SaTReC logo.

Star #2 – representing NASA's ACS3 payload.

KAIST
(Korean Advanced Institute of Science and Technology)

MSIT
(Ministry of Science and ICT)

SaTReC
(Satellite Technology Research Center)

S.I.
(Satrec Initiative).

KARI
(Korea Aerospace Research Institute).

Primary payload name.

Earth observation satellite.

Electron launch vehicle.

Mission merchandise, including this mission patch, can be found online at: **rocketlabusa.com/shop**

CONTACT US

rocketlabusa.com
media@rocketlabusa.com

CONNECT WITH US

@rocketlab
RocketLabUSA
facebook.com/rocketlabusa

ROCKETLAB