



LOVE AT FIRST INSIGHT

LAUNCH INFORMATION



LAUNCH WINDOW

A 14-day launch window opens
NET 11 November 2021.



DAILY LAUNCH OPPORTUNITY

The launch timing for this mission will shift slightly each day of the launch window and is 2 hrs 10 minutes each day.

NZ	
11 Nov	17:25-19:35
12 Nov	17:00-19:10
13 Nov	16:30-18:40
14 Nov	16:05-18:15
15 Nov	15:40-17:50
16 Nov	15:10-17:20
17 Nov	14:40-16:50
18 Nov	14:20-16:30
19 Nov	13:50-16:00
20 Nov	13:20-15:30
21 Nov	13:00-15:10
22 Nov	12:30-14:40
23 Nov	12:00-14:10
24 Nov	11:35-13:45

UTC	
11 Nov	04:25-06:35
12 Nov	04:00-06:10
13 Nov	03:30-05:40
14 Nov	03:05-05:15
15 Nov	02:40-04:50
16 Nov	02:10-04:20
17 Nov	01:40-03:50
18 Nov	01:20-03:30
19 Nov	00:50-03:00
20 Nov	00:20-02:30
21 Nov	00:00-02:10
21 Nov	23:30-01:40
22 Nov	23:00-01:10
23 Nov	22:35-00:45

ET	
10 Nov	23:25-01:35
11 Nov	23:00-01:10
12 Nov	22:30-00:30
13 Nov	22:05-00:15
14 Nov	21:40-23:50
15 Nov	21:10-23:20
16 Nov	20:40-22:50
17 Nov	20:20-22:30
18 Nov	19:50-22:00
19 Nov	19:20-21:30
20 Nov	19:00-21:10
21 Nov	18:30-20:40
22 Nov	18:00-20:10
23 Nov	17:35-19:45

PT	
10 Nov	20:25-22:35
11 Nov	20:00-22:10
12 Nov	19:30-21:30
13 Nov	19:05-21:15
14 Nov	18:40-20:50
15 Nov	18:10-20:20
16 Nov	17:40-19:50
17 Nov	17:20-19:30
18 Nov	16:50-19:00
19 Nov	16:20-18:30
20 Nov	16:00-18:10
21 Nov	15:30-17:40
22 Nov	15:00-17:10
23 Nov	14:35-16:45



ORBIT

430km



SATELLITES

2



INCLINATION

42

Degrees



CUSTOMER

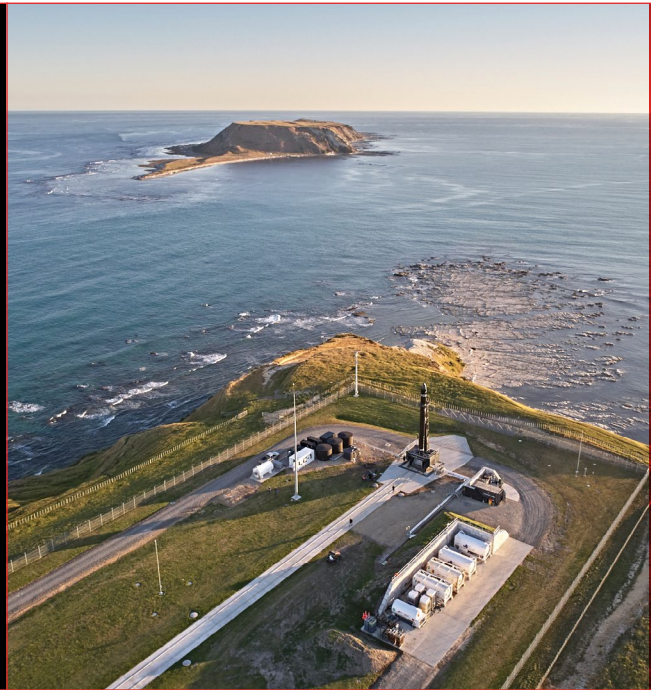
BlackSky

Dedicated mission

MISSION OVERVIEW

ABOUT 'LOVE AT FIRST INSIGHT'

Launching from Rocket Lab Launch Complex 1 on New Zealand's Mahia Peninsula, the 'Love At First Insight' mission will be Rocket Lab's 22nd Electron launch overall and fifth mission of 2021.



LAUNCH COMPLEX 1
MAHIA, NEW ZEALAND



'Love At First Insight' is the first in a succession of dedicated Electron launches that are part of a multi-launch agreement signed earlier this year for BlackSky between Rocket Lab and Spaceflight Inc, which is providing integration and mission management services for BlackSky.

This mission will deploy the eighth and ninth satellites of BlackSky's planned constellation as part of that rapid-launch agreement, with another four Gen-2 smallsats across the two additional Electron dedicated missions to follow.

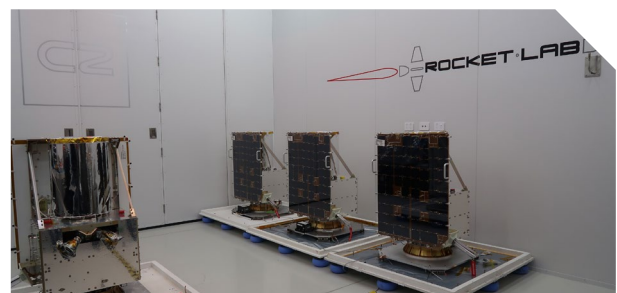
The 'Love At First Insight' launch will bring the total number of satellites launched by Rocket Lab to 107, joining a collection of successfully deployed satellites from various sectors including Earth-observation, Internet of Things, weather and climate monitoring, academia and scientific research, civil government, defense, and more.

PAYLOADS ONBOARD ELECTRON: BLACKSKY GEN-2

BLACKSKY

Electron will deploy two of BlackSky's high-resolution, multi-spectral Gen-2 satellites to low Earth orbit, expanding BlackSky's network in space and offering of real-time geospatial intelligence and monitoring services.

BlackSky combines high-resolution images captured by its constellation of microsattellites with its proprietary artificial intelligence software to deliver analytics and insights to industries including transportation, infrastructure, land use, defense, supply chain management, and humanitarian aid.



LAUNCH, CATCH, REPEAT

MAKING ELECTRON THE WORLD'S FIRST
REUSABLE SMALL LAUNCH VEHICLE



✦ FLIGHT 16 – RETURN TO SENDER
LAUNCH COMPLEX 1, MAHIA, NEW ZEALAND



✦ FLIGHT 16 – RETURN TO SENDER
RECOVERY SPLASHDOWN, NOVEMBER 2020

As the second-most frequently launched U.S. rocket, Electron has solved dedicated rides to space for small satellites. But for Rocket Lab, that was just the beginning of our work to streamline access to space.

To help the latest research and technology and next-generation ideas get into space quicker, we're focused on providing even more regular and reliable launches to orbit – by making Electron the world's first reusable orbital-class small launch vehicle.

As one of only two companies to recover an orbital-class booster from space, we've proven it's possible. Now, for this next mission, we're refining our techniques and technology as we inch closer to our ultimate goal: launch, catch, repeat.

Love At First Insight

While this mission's primary objective is to deploy two Earth-observation satellites for BlackSky, Rocket Lab will also attempt a controlled ocean splashdown and recovery of Electron's first stage.

The mission will be Rocket Lab's third ocean recovery of an Electron stage following previous ocean splashdown recovery missions: the 'Return to Sender' mission in November 2020, and the 'Running Out of Toes' mission in May 2021.

But for Love At First Insight, for the first time, Rocket Lab will station a helicopter in the recovery zone around 200 nautical miles offshore to track and visually observe a descending stage in preparation for future aerial capture attempts. The helicopter will not attempt a mid-air capture for this mission but will test communications and tracking to refine the concept of operations (CONOPS) for future Electron aerial capture.

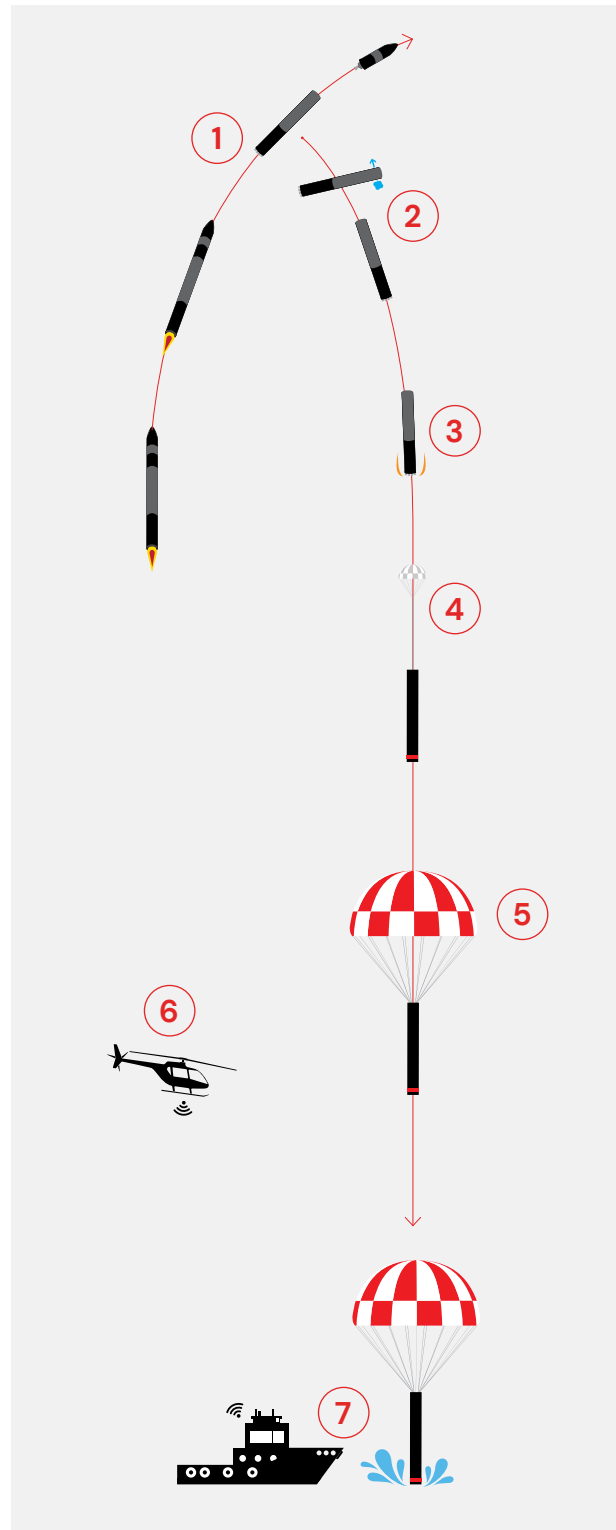
LAUNCH, CATCH, REPEAT

MAKING ELECTRON THE WORLD'S FIRST REUSABLE SMALL LAUNCH VEHICLE

Here's how we'll do it.

'Love At First Insight' launch and recovery operations timeline:

- 1 Approximately two and a half minutes after lift-off, the nine Rutherford engines on Electron's first stage will shut down and Electron's first and second stages will separate. Electron's second stage will continue with the customer's payload to space, where the Kick Stage will separate and deploy the satellites.
- 2 Following stage separation, Electron's first stage will begin its descent. A cold-gas reaction control system will position the stage on an ideal angle to re-enter the atmosphere.
- 3 While descending, Electron's first stage is expected to experience intense heat and pressure while travelling up to eight times the speed of sound before significantly decelerating to enable a drogue parachute to be deployed.
- 4 At approximately seven and a half minutes into the mission, Electron's drogue parachute will be deployed at around 43,000 ft (13 km) altitude. This drogue parachute both increases the booster's drag and stabilizes its descent as it approaches the ocean.
- 5 Earlier and higher than on previous flights, the large main parachute will be deployed less than a minute after the drogue, at an altitude of 19,000 ft (5.7 km) to further slow the stage and enable a controlled splashdown. A key objective of this mission is to increase the drift-time of Electron's first stage to test communications and tracking for future aerial recovery efforts.
- 6 Upon receiving the all-clear from the recovery team stationed at sea, a nearby helicopter will be deployed to sight the returning stage and observe its descent to record data that will help refine Electron aerial capture CONOPS.
- 7 Once in the ocean, Rocket Lab engineers will attempt to retrieve the stage onboard their vessel with their purpose-built Ocean Recovery and Capture Apparatus (ORCA), a specialised cradle and winch system manufactured to Electron specifications and dimensions, before transporting the stage back to Rocket Lab's production complex for analysis and inspection.



VIEWING A LAUNCH ONLINE



LIVE STREAM LINKS

The livestream is viewable at:

rocketlabusa.com/live-stream

Webcast will be live approx. T-20 minutes

LAUNCH FOOTAGE & IMAGES

Images and footage of the 'Love At First Insight' launch will be available shortly after a successful mission at:

www.rocketlabusa.com/about-us/updates/link-to-rocket-lab-imagery-and-video

UPDATES

For information on launch day visit:

rocketlabusa.com/next-mission

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VIEWING A LAUNCH IN PERSON

Location

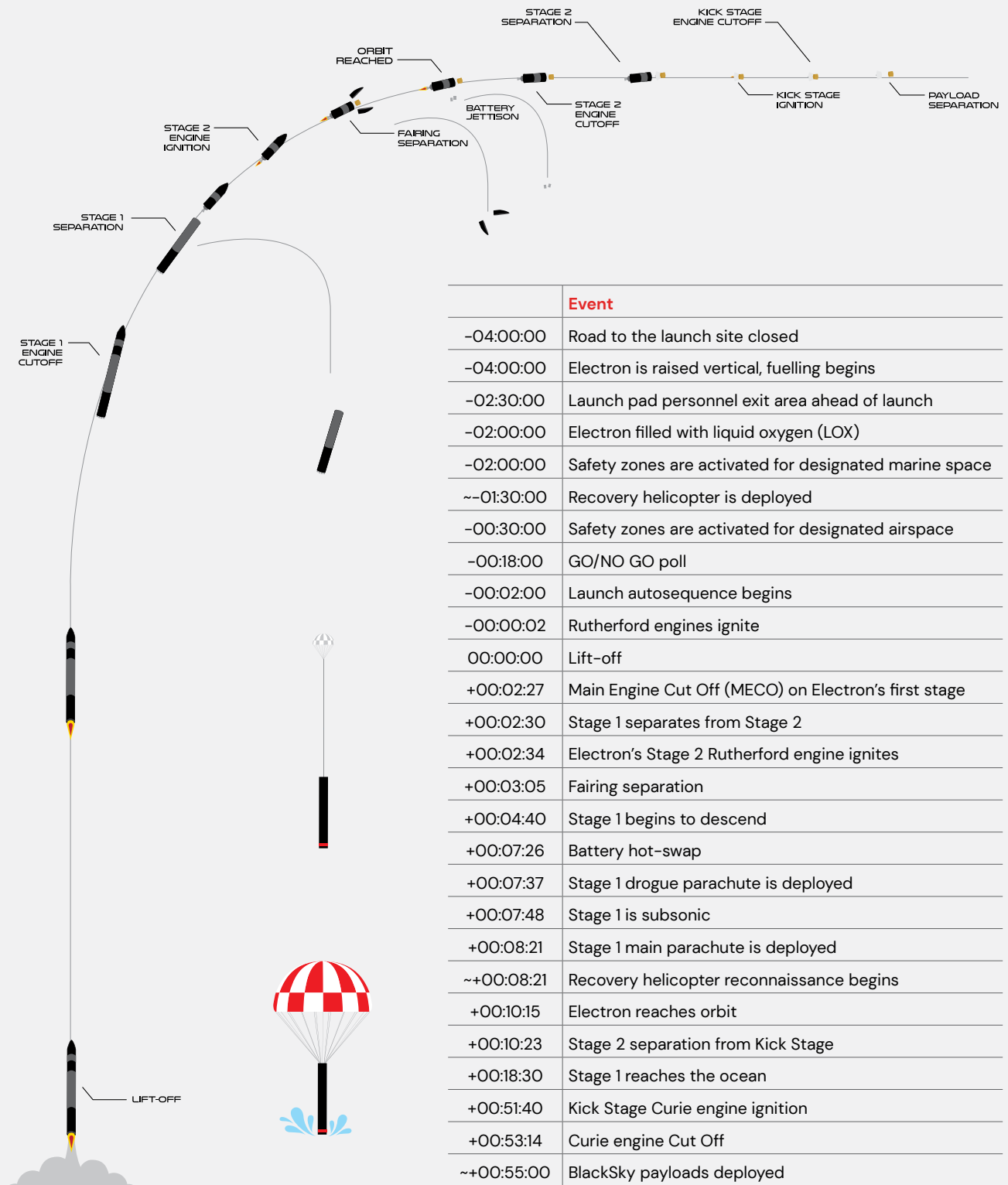
Wairoa District Council has allocated a rocket launch viewing area for the public near Nuhaka, accessible via Blucks Pit Road. Scrubs and postponements are likely during launch windows, so visitors to the Blucks Pit viewing site should anticipate multiple postponements, sometimes across several days.

More information visit

www.visitwairoa.co.nz/welcome-to-wairoa/space-coast-new-zealand



TIMELINE OF LAUNCH EVENTS



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

200kg / 440lbm To 500km SSO

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

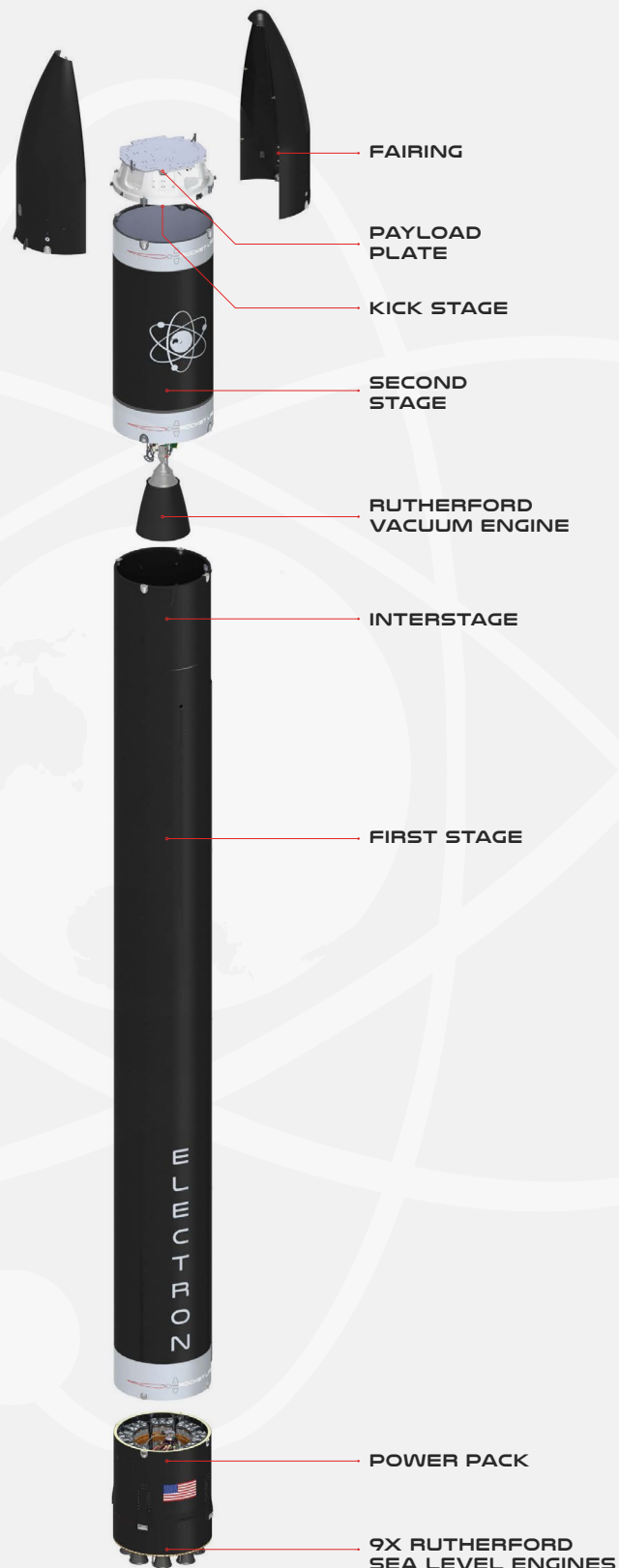
9x Rutherford Sea Level Engines

THRUST

5600 LBF Sea Level (Per Engine)

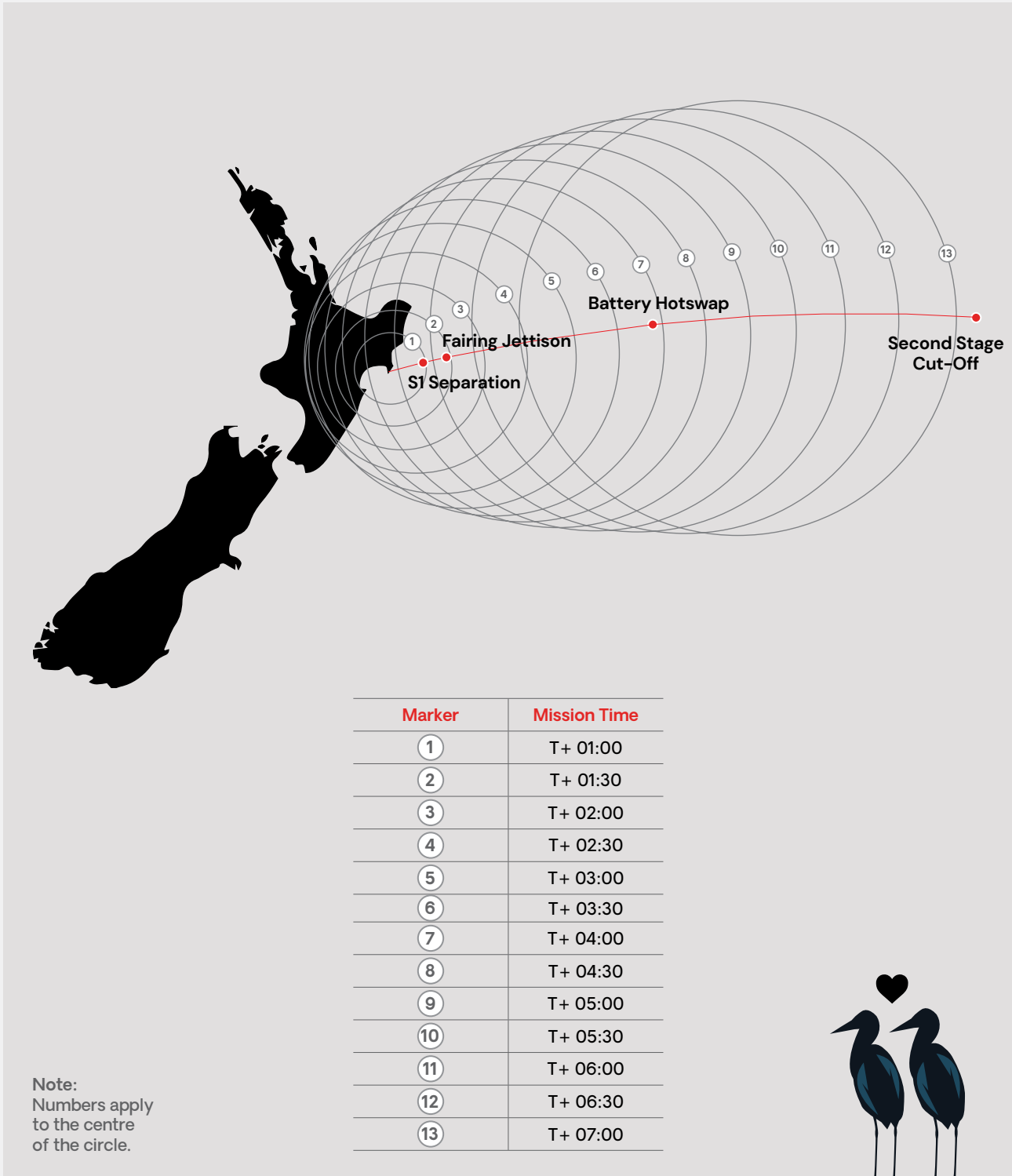
ISP

311 Sec




LAUNCH VISIBILITY MAP

WHEN AND WHERE TO SPOT THE LAUNCH





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 rocketlabusa.com

 media@rocketlabusa.com

CONNECT WITH US

 [@rocketlab](https://twitter.com/rocketlab)

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