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# News



The Electron rocket as it blasted off, and moments before it was captured (inset)

ROCKET LAB

Space

## Catch a falling rocket

A partially successful attempt at grabbing a rocket with a helicopter is a historic first, report **Jonathan O'Callaghan** and **Alex Wilkins**

A US launch company is the first to catch a rocket falling back to Earth in mid-air using a helicopter, though the manoeuvre was only partially successful as the helicopter was forced to drop the rocket into the ocean below.

The company, Rocket Lab, caught one of its Electron rockets shortly after it launched from New Zealand's Māhia peninsula at 2250 GMT on 2 May. The mission, dubbed "There and Back Again", involved the small rocket taking 34 satellites to Earth orbit, including one to monitor Earth's light pollution.

Around two and a half minutes after launch, the first and second stages of the rocket separated. The latter continued to carry the satellites to orbit, while the first stage booster fell back to Earth. As it fell, it reached temperatures of 2400°C and speeds of more than 8000 kilometres per hour, before deploying a series of parachutes to help slow its descent to around 35 kilometres per hour.

A Sikorsky S-92 helicopter then used a long cable to hook the booster by its parachute. Despite an initially successful catch, the helicopter pilots recorded "different load characteristics" to previous capture tests and were forced to dump the rocket booster into the ocean, where it was later recovered by ship. The original plan was for the booster to return to land without touching seawater, which can cause salt damage.

"Trying to catch a rocket as it falls back to Earth is no easy feat," Rocket Lab's CEO, Peter Beck, said in a statement before the launch. "We're absolutely threading the needle here."

At 18 metres tall, the Electron rocket is relatively small, about a quarter of the size of SpaceX's Falcon 9, the leader in reusable rockets. Yet Rocket Lab hopes to follow in the footsteps of SpaceX by making its rockets reusable to reduce costs, albeit via mid-air capture rather than landing on the ground or floating barges.

Rocket Lab has practised parachuting its rockets back into the ocean on previous launches, and recently captured a dummy rocket with its helicopter. ▮

Environment

## Pollution makes coral less resilient

**AREAS of coral reefs closest to land-based development and pollution are less likely to survive when ocean temperature spikes.**

**After a marine heatwave hit Hawaii in 2019, Greg Asner at Arizona State University and his colleagues wanted to know how its reefs fared.**

**"We're trying to figure out, how bad is it for these corals? Which corals, in which areas?" says Asner.**

**With colleagues, Asner flew a small aeroplane over the area, outfitted with a special infrared spectrometer to measure differences in the spectrum of light emitted by corals. This can reveal whether corals are living or dead.**

**The team's analysis of more than 200 square kilometres of reefs around six Hawaiian islands revealed that corals in some areas were up to 40 per cent more likely to survive than those in neighbouring reefs.**

**The best predictor of coral loss was the health of the reef before the heatwave. More specifically, areas of the reef nearest to coastal development or sediment run-off were more likely to die (*PNAS*, doi.org/hsjm).**

**"It's a one-two punch that's killing coral, which is heat, plus pollution," says Asner. He is already using the results to help inform conservation efforts in the area, with the goal of reducing damaging pollution where corals have managed to hold on.** ▮

**Corryn Wetzel**