

# Drop it like it's hot: Space Rider model falls gracefully

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Credit: ESA/Thales Alenia Space

Over the last four months, the Space Rider team has been running a drop-test campaign whereby a full-scale model of the future orbital laboratory is dropped from a helicopter to test and qualify the deployment of its

parachutes, at Salto di Quirra in Sardinia, Italy.

The Space Rider project is an uncrewed laboratory about the size of two minivans that will be able to stay in orbit for up to two months. The spacecraft comes in two parts, an orbital module that supplies everything it needs to fly around our planet and a reentry module that brings Space Rider and its experiments back to Earth.

Over the course of this test campaign that started in April and is expected to finish in autumn, the teams are using a model of Space Rider that has a similar [weight distribution](#) as the real 3,000 kg reentry module. This allows the team to test the parachutes, parafoil and control winches that automatically guide the spacecraft to a soft touchdown on Earth.

Dropped from a [maximum height](#) of 3.5 km, drogue chutes deploy to help slow down the [test model](#) to a safe speed to extract the parafoil that will allow the spacecraft to be steered to a landing strip. The enormous paraglider is 27 m long and 10 m wide—around 10 times larger than a human parafoil—and is controlled from the ground to test the aerodynamics involved. The test model touched down in a [soft landing](#) as planned, losing altitude at a slow 12 km/h.

In autumn, the same full-scale model will undergo more [flight tests](#), including a test of the flight control algorithm that will guide the spacecraft model on its own to land at a selected landing point—no more [ground control](#), but full automation for the next step of the test campaign. This step will further confirm the engineering and software behind this novel spacecraft.

Thales Alenia Space is the industrial lead for the tests and co-prime for the Space Rider program. The Italian Defense supports the test activities as part of a national effort to enhance its space capabilities and international collaboration in the sector. The tests will qualify the

spacecraft's whole mission from flight, return to Earth, and landing. After the test campaigns, flight models will be authorized for manufacturing.

Provided by European Space Agency

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