



ISPACE'S HAKUTO-R MISSION 1

MISSION OVERVIEW

SpaceX is targeting Sunday, December 11 for a Falcon 9 launch of **ispace's HAKUTO-R Mission 1** - the first privately-led Japanese mission to land on the lunar surface – from Space Launch Complex 40 (SLC-40) at Cape Canaveral Space Force Station in Florida. Also onboard this mission is **NASA's Jet Propulsion Laboratory's Lunar Flashlight**. The instantaneous launch window is at 2:38 a.m. ET (07:38 UTC), and a backup opportunity is available on Monday, December 12 at 2:31 a.m. ET (07:31 UTC).

The first stage booster supporting this mission previously launched SES-22 and three Starlink missions. Following stage separation, the first stage will land on Landing Zone 1 (LZ-1) at Cape Canaveral Space Force Station.

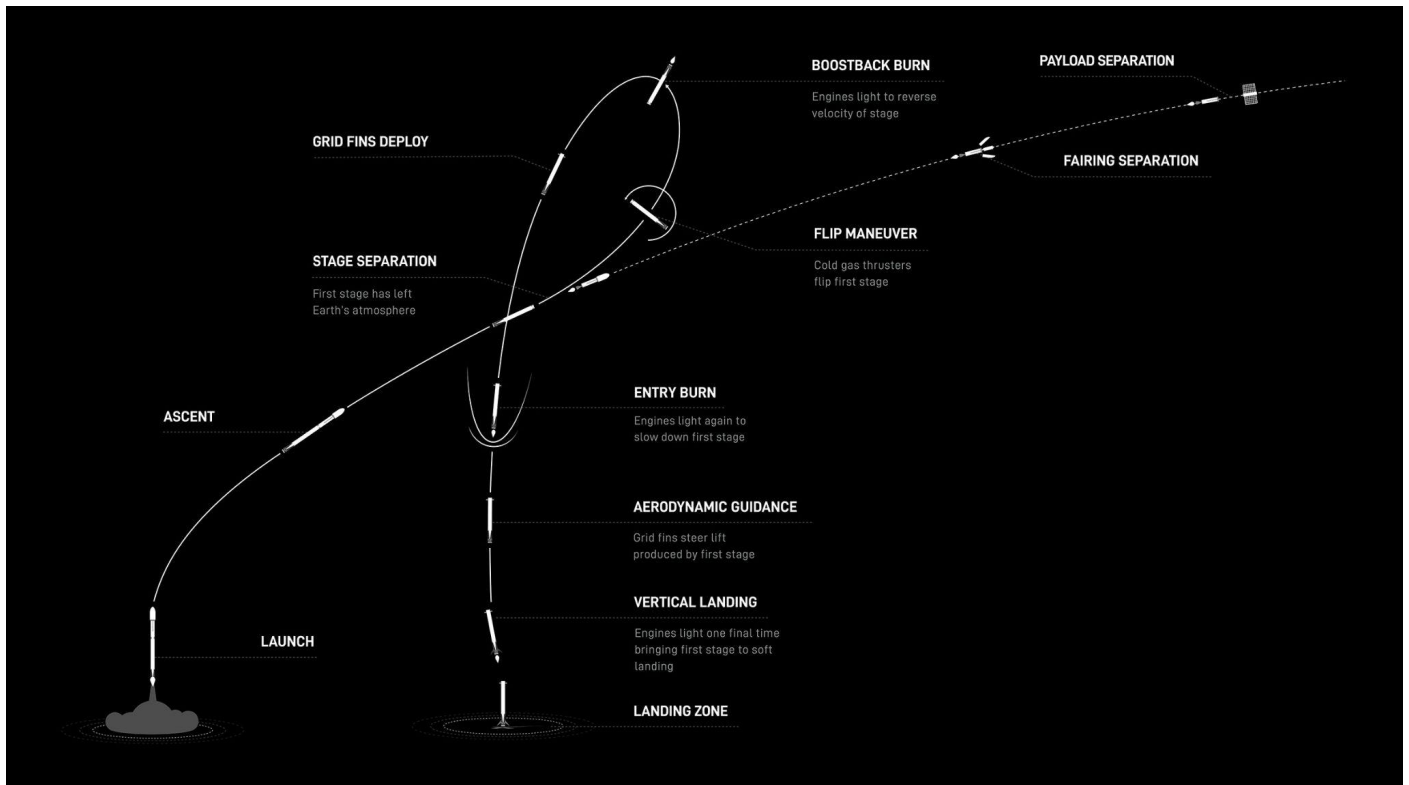
WEBCAST

[A live webcast of this mission](#) will begin about 15 minutes prior to liftoff.

PHOTOS

High-resolution photos will be posted at [flickr.com/spacex](https://www.flickr.com/photos/spacex/).

MISSION PROFILE



MISSION TIMELINE (ALL TIMES APPROXIMATE)

COUNTDOWN

Hr/Min/Sec	Event
- 00:38:00	SpaceX Launch Director verifies go for propellant load
- 00:35:00	RP-1 (rocket grade kerosene) loading underway
- 00:35:00	1st stage LOX (liquid oxygen) loading underway
- 00:16:00	2nd stage LOX loading underway
- 00:07:00	Falcon 9 begins engine chill prior to launch
- 00:01:00	Command flight computer to begin final prelaunch checks
- 00:01:00	Propellant tank pressurization to flight pressure begins
- 00:00:45	SpaceX Launch Director verifies go for launch
- 00:00:03	Engine controller commands engine ignition sequence to start
- 00:00:00	Falcon 9 liftoff

LAUNCH, LANDING AND DEPLOYMENT

Hr/Min/Sec	Event
00:01:12	Max Q (moment of peak mechanical stress on the rocket)
00:02:13	1st stage main engine cutoff (MECO)
00:02:17	1st and 2nd stages separate
00:02:24	2nd stage engine starts
00:02:29	Boostback burn start
00:03:06	Fairing deployment
00:03:26	Boostback burn complete
00:06:33	1st stage entry burn start
00:06:53	1st stage entry burn complete
00:07:44	1st stage landing burn start
00:07:52	2nd stage engine cutoff (SECO-1)
00:08:16	1st stage landing
00:40:02	2nd stage engine starts (SES-2)
00:40:58	2nd stage engine cutoff (SECO-2)
00:46:59	ispace's HAKUTO-R Mission 1 deploys
00:53:09	NASA's Jet Propulsion Laboratory's Lunar Flashlight deploys