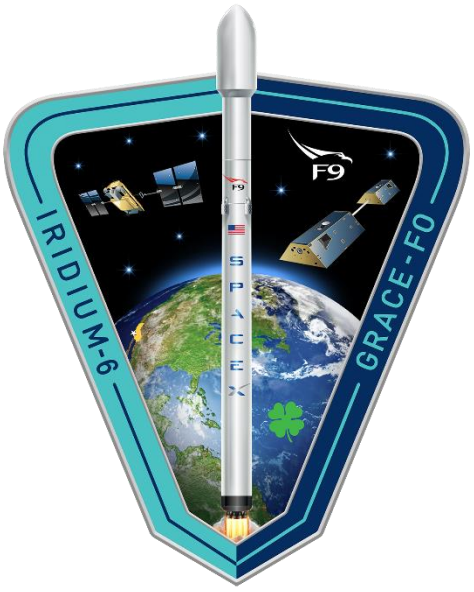
Iridium-6/GRACE-FO Mission

Mission Overview

SpaceX is targeting launch of Iridium-6/GRACE-FO on Tuesday, May 22 from Space Launch Complex 4E (SLC-4E) at Vandenberg Air Force Base, California. The instantaneous launch opportunity is at 12:47 p.m. PDT, or 19:47 UTC. The GRACE-FO satellites will be deployed approximately eleven minutes and thirty seconds after launch, followed by the deployment of five Iridium® NEXT satellites beginning about an hour after launch.

A backup instantaneous launch opportunity is available on Wednesday, May 23 at 12:42 p.m. PDT, or 19:42 UTC.

Falcon 9's first stage for the Iridium-6/GRACE-FO mission previously supported the Zuma mission from Space Launch Complex 40 (SLC-40) at Cape Canaveral Air Force Station in January 2018. SpaceX will not attempt to recover Falcon 9's first stage after launch.



Official SpaceX Iridium-6/GRACE-FO Mission Patch

Payloads

For this sixth Iridium mission, five Iridium® NEXT satellites will be launched as part of the company's campaign to replace the world's largest commercial satellite network. A total of eight Iridium NEXT launches are planned with SpaceX, which will deliver 75 new satellites to orbit. In total, 81 satellites are being built, with 66 in the operational constellation, nine serving as on-orbit spares and six as ground spares. Iridium is the only satellite communications network that spans the entire globe.

Iridium NEXT is one of the largest "tech upgrades" in space history. The process of replacing the satellites one by one in a constellation of this size and scale has never been completed before. The new constellation is enabling the development of innovative products and services including Iridium Certus℠, the Company's next-generation broadband solution for specialized applications, like safety services, data and communications, remote monitoring, tracking and more.

The NASA/German Research Centre for Geosciences (GFZ) GRACE Follow-On (GRACE-FO) mission will continue GRACE's 15-year legacy of tracking the movement of Earth's mass. As its twin satellites fly over areas of higher and lower mass, the distance between them changes slightly due to gravitational forces. By precisely measuring these changes, the distribution of Earth's mass can be mapped monthly and tracked over time. This data can be used to monitor changes in ice sheets and glaciers, underground water storage, water in large lakes and rivers, and sea level, providing a unique view of Earth's evolving climate and its water and energy cycles, with far-reaching societal benefits.

Mission Timeline (all times approximate)

COUNTDOWN

Hour/Min/Sec	Events
- 01:13:00	SpaceX Launch Director verifies go for propellant load
- 01:10:00	RP-1 (rocket grade kerosene) loading underway
- 00:35:00	LOX (liquid oxygen) 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 AND SATELLITE DEPLOYMENTS

Hour/Min/Sec	Events
00:01:19	Max Q (moment of peak mechanical stress on the rocket)
00:02:46	1st stage main engine cutoff (MECO)
00:02:49	1st and 2nd stages separate
00:02:57	2nd stage engine starts
00:03:12	Fairing deployment
00:10:13	2nd stage engine cutoff (SECO-1)
00:11:33	GRACE-FO satellites deployed
00:56:55	2nd stage engine restarts
00:57:03	2nd stage engine cutoff (SECO-2)
01:05:48	Iridium NEXT satellites begin deployment
01:12:28	Iridium NEXT satellites end deployment

Launch Facility

Space Launch Complex 4E at Vandenberg Air Force Base, California

SpaceX's Space Launch Complex 4E at Vandenberg Air Force Base has a long history dating back to the early 1960s. Originally an Atlas launch pad activated in 1962, SLC-4E was in active use until its last Titan IV launch in 2005. SpaceX's groundbreaking was in July 2011, and the pad was completed just 17 months later in November 2012. SpaceX took advantage of some existing pad infrastructure, but implemented extensive modifications and reconstruction of the launch complex. Part of the renovation included tearing down a 30+ story mobile service tower and a 20+ story umbilical tower. 97 percent of these units were recycled.

SLC-4E consists of a concrete launch pad/apron and a flame exhaust duct. Surrounding the pad are RP-1 and liquid oxygen storage tanks and an integration hangar. Before launch, Falcon 9's stages, fairing and the mission payload are housed inside the hangar. A crane/lift system moves Falcon 9 into a transporter erector system and the fairing and its payload are mated to the rocket. The vehicle is rolled from the hangar to the launch pad shortly before launch to minimize exposure to the elements.

Resources

SpaceX Contact | Eva Behrend, Sr. Communications Manager, 310-363-6247, media@spacex.com.
Photos | High-resolution photos will be posted at flickr.com/spacex.
Webcast | Launch webcast will go live about 15 minutes before liftoff at spacex.com/webcast.