

Spaceport America: A Unique Inland Location for Flexible Suborbital Launch and Microgravity Research

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Abstract

Spaceport America (SA) is an FAA-licensed 18,000-acre spaceport situated within the restricted airspace of the adjacent White Sands Missile Range (WSMR) in central New Mexico. With a 12,000-foot dedicated runway and a separate, dedicated vertical launch pad area, SA supports rapid launch capabilities for both horizontal and vertical launch vehicles. SA sits in a remote, high-altitude (4,600 feet above MSL), secure inland location with a dry desert climate that allows for year-round, quick-turnaround launch opportunities.

Spaceport America Operations

At right is a map of the Spaceport America range with the operational regions highlighted. Aerospace operations at Spaceport America can roughly be divided into three main activities:

- 1) Horizontal Launch and Landing – The Horizontal Launch Area is centered on the 12,000-foot, 200-foot wide concrete runway. The HLA supports varied activities including test and operations of horizontal take-off vehicles, powered and unpowered reentry vehicle landing, drone and UAS vehicle testing, and high-altitude balloon launch.
- 2) Vertical Launch and Testing – The Vertical Launch Area (VLA), located five miles from the runway, features the Vertical Launch Operations Center plus areas dedicated to solid rocket motor fabrication, horizontal rocket motor test, and rail and/or guided launch pads. The VLA currently supports testing and launch-to-space operations for DoD, commercial, and academic research payloads aboard solid- and liquid-fueled rockets.
- 3) Advanced Technology Area – Remote areas of the Spaceport provide a secure base for testing advanced flight concepts including hypersonic launch. Joint operations with White Sands Missile Range enable flight testing along a 70-mile corridor entirely within WSMR restricted airspace.

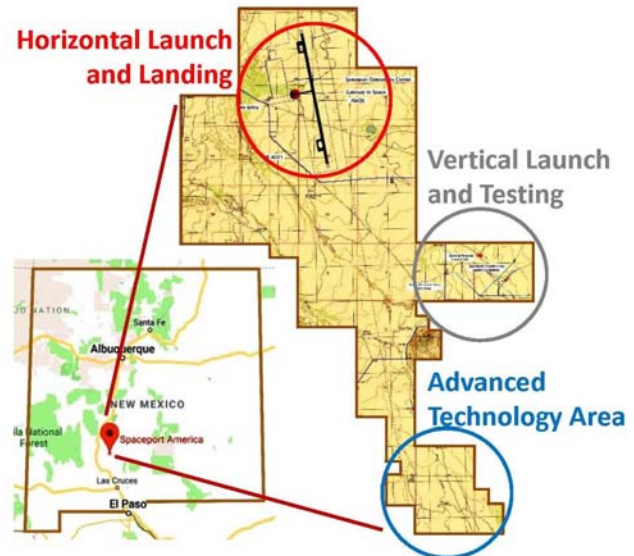


Figure Insert: Location and operational map of the 18,000-acre Spaceport America complex

Suborbital Launch Operations

Commercial launch providers have been launching research payloads from SA's Vertical Launch Area since 2007. In 2020, anchor tenant Virgin Galactic will begin ferrying research payloads from SA aboard their SpaceShipTwo Unity as they transition all spaceflight operations to New Mexico. As a State of New Mexico entity, Spaceport America enjoys a collaborative partnership with New Mexico's university and national research laboratories, providing opportunities for visiting researchers to leverage New Mexico's historically extensive research infrastructure.

Conclusions

Spaceport America provides a unique location for enabling rapid, secure, responsive suborbital microgravity research on commercial and university launch vehicles. SA's restricted surface-to-unlimited airspace and a year-round fair-weather climate provide easily arranged opportunities for single or recurring research flights. Looking to the future, SA plans additional on-site launch and payload- and rocket-processing infrastructure to enhance support of aerospace and space research missions.