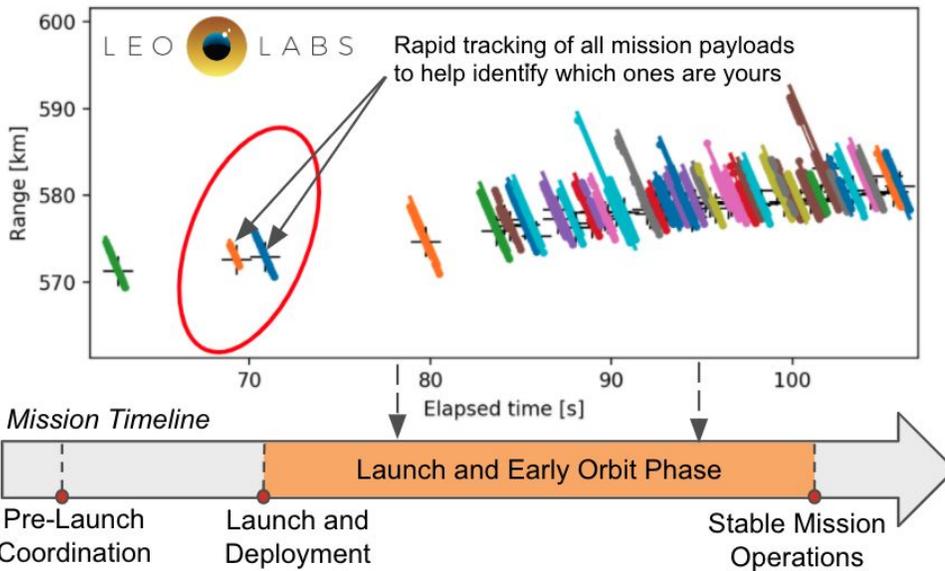


LeoLabs Launch and Early Orbit

Rapid Payload Tracking and Identification Support for Early Mission Operations

For satellite operators, launches often represent the most difficult and stressful phase of their missions. Multiple vital objectives must be accomplished in a brief period of time, including successfully locating their satellites and establishing initial communications. Certain types of missions, including rideshares with dozens of payloads belonging to multiple owner-operators, can further amplify these challenges. Additionally, even after payloads are identified and cataloged, cross-tagging and misassociations can occur leading to further confusion. As a result, operators have needed to dedicate key personnel to these resource-intensive efforts for days or weeks, putting critical projects on hold during these all-hands-on-deck processes.

These are the challenges that LeoLabs addresses with its new *Launch and Early Orbit* service, a first-of-its-kind capability in the space industry to provide commercial radar tracking support for newly launched payloads during the crucial first hours and days of mission operations. The service provides rapid assistance for payload location and identification so operators can establish communications with their satellites and transition to routine mission operations as quickly as possible.



Using the LeoLabs global network of phased-array radar systems, along with a suite of in-house tools and algorithms specifically designed to support fast asset tracking and data processing, we generate orbit data products and send them directly to satellite operators often within just hours of launch. This eliminates the need to rely on objects being added to the public catalog prior to receiving the first TLEs, which can often take several days or weeks for complex missions.

The LeoLabs Global Radar Network

LeoLabs owns and operates a growing network of ground-based, phased array radars to track objects in LEO. We are building a network that will provide:

- Six radars located strategically around the world for optimal tracking coverage
- Ability to reliably track objects down to 2cm in size
- A total predicted LEO catalog of 250,000+ objects with revisit rates of 10+ times per day for prioritized objects



Poker Flat Incoherent Scatter Radar (Alaska)



Midland Space Radar (Texas)



Kiwi Space Radar (New Zealand)

Under Construction



Completion in Q2 2021

Radar #4 (Costa Rica)

A Dedicated Service for Rapid Asset Identification

LeoLabs Launch and Early Orbit is available today to satellite operators worldwide, supporting launches of any size or complexity including large rideshare missions. The service includes:

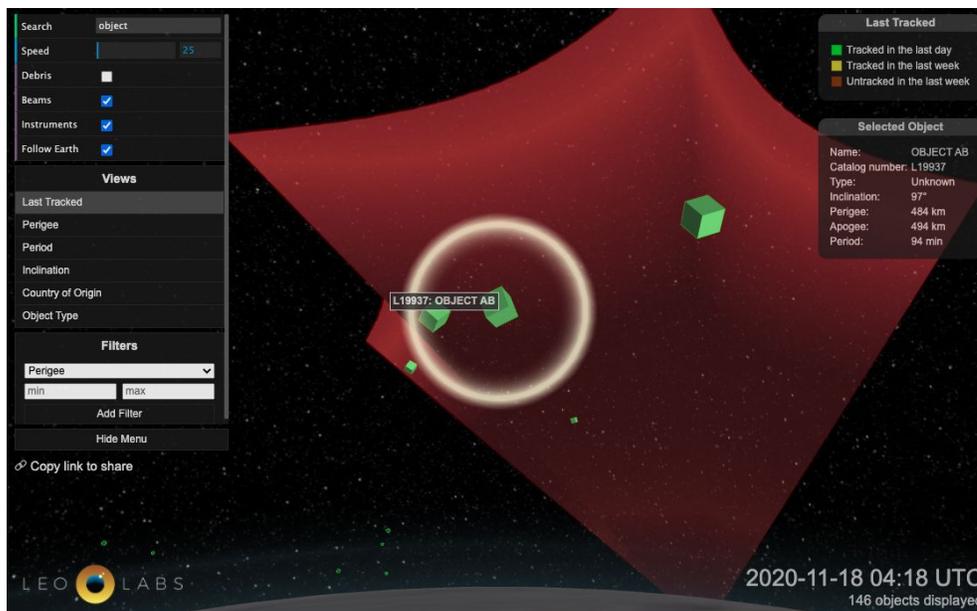
Pre-launch coordination - LeoLabs coordinates with satellite operators and launch providers (if required) to obtain launch nominals and predicted orbit insertion parameters for all payloads to schedule our radars for tracking.

Early Orbit Tracking - LeoLabs radars are operated in search mode to track all deployed objects immediately following launch. High accuracy measurements are collected including range, doppler, radar cross section (RCS), and distribution data. Payloads are often identified within the first 1-2 radar passes, depending on orbit geometry. Subsequent radar passes can further improve accuracy of initial results.

Orbit Products - LeoLabs processes the tracking data through our algorithms for payload association and initial orbit determination to produce:

- Fitted TLEs or state vectors corresponding to the payloads deemed most likely to be yours, delivered rapidly after each radar pass.
- Data plots and visual aides showing all detected payloads and the relative distribution and spacing, with object labels for additional insights.

Identification Support - LeoLabs works directly with operators to help predict which payloads on rideshare missions are theirs, and delivers orbit products for those objects. If there is any ambiguity, we can also provide orbit products and distribution analyses for surrounding payloads to aid in establishing communications.



Don't leave mission success to chance. Contact us today to learn more about Launch and Early Orbit and LeoLabs other commercial services supporting operational safety of flight.

Continued Support

LeoLabs support doesn't stop with Launch and Early Orbit. All operators subscribing to this service will also receive 30 days of our [Tracking and Monitoring](#) service, which provides high precision state vectors and ephemerides delivered daily. Tracking and Monitoring begins where Launch and Early Orbit ends, providing full mission coverage and a seamless transition into routine mission operations.

Inform, Serve, and Secure LEO.