

FinSpace winner LeoLabs working with Planet to show how commercial data helps satellite operators avoid collisions

by [Debra Werner](#) — September 12, 2017



LeoLabs founder and chief executive Dan Ceperley (right) and Alan DeClerck, the firm's vice president of business development and strategy, were honored Sept. 11 in Paris as one of five winners of The FinSpace Awards, organized by Euroconsult and Communications-Smart. Credit: Courtesy of LeoLabs

SAN FRANCISCO — Planet and LeoLabs, the Silicon Valley startup building a network of radars to track objects in low Earth orbit, are working together to demonstrate how satellite operators can use commercial tracking data to prevent collisions.

For six months, Planet has been sharing with LeoLabs the conjunction warnings it receives from U.S. Strategic Command's Joint Space Operations Center at Vandenberg Air Force Base. LeoLabs uses the data to provide Planet with additional information on debris threatening its satellites.



LeoLabs new radar in Midland, Texas, came on line in February. Credit: LeoLabs

“The industry as a whole faces conjunction messages daily,” Dan Ceperley, LeoLabs founder and chief executive, told *SpaceNews*. “We provide Planet with additional tracking data on the debris identified in the conjunction data messages that allows them to discard the low probability conjunctions and zoom in on the more important ones so

they can make informed decisions about whether they need to maneuver and how they need to maneuver.”

The two companies plan to release a paper describing the joint project at the Advanced Maui Optical Space Surveillance and Technologies Conference in Hawaii Sept. 19-22. “We have been working out best practices with Planet,” Ceperley said. “We plan to publish this model so others can use it as well.”

Low Earth orbit is expected to become increasingly crowded with a surge in the number of small satellites launched, including cubesats like Planet’s that lack the onboard propulsion systems that larger spacecraft use to maneuver out of harm’s way. Planet moves its satellites by modifying the position of their solar panels to vary the amount of drag.

“Planet is able to use the same timelines as a lot of the other satellite operators,” Ceperley said. Satellite operators typically receive conjunction notices five to seven days before an event and may begin to maneuver three days before a close approach, he added.

Advertisement

“Planet is demonstrating that new satellite constellations can be responsible stewards of space by combining notices from STRATCOM with commercial data sources to keep their satellites safe and keep space available for all the other companies they are inspiring,” Ceperley said.

LeoLabs tracks debris in low Earth orbit with phased array radars in Texas and Alaska. The company plans to install additional radars to provide more frequent observations, the ability to track objects as small as two centimeters and better coverage of objects near the equator.

“With the two radars currently operating, we can do a good job of supporting a lot of the conjunctions that we are seeing today,” Ceperley said. “The service will get even better over the next few years with additional radars.”

Planet and LeoLabs share data through a flight system that relies on commercial data sources to improve collision risk assessment and evaluate potential debris-avoidance maneuvers. Planet sends conjunction messages to LeoLabs autonomously, which responds autonomously with data on the debris and provides calculations on possible maneuvers.

Initially, people in both companies supervised the process to make sure it worked well but the end result is an automated machine-to-machine process, Ceperley said. SN