

## Image: NASA's RapidScat payload

September 5 2014, by Alan Buis

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RapidScat's two-part payload is shown in the trunk of a SpaceX Dragon cargo spacecraft at NASA's Kennedy Space Center in Florida. Credit: NASA

NASA's ISS-RapidScat wind-watching scatterometer, which is scheduled to launch to the International Space Station no earlier than Sept. 19, will be the first science payload to be robotically assembled in space since the space station itself. This image shows the instrument assembly on the left, shrouded in white. On the right is Rapid-Scat's nadir adapter, a very sophisticated bracket that points the scatterometer toward Earth so that it can record the direction and speed of ocean winds. The two pieces are

stowed in the unpressurized trunk of a SpaceX Dragon cargo spacecraft at Cape Canaveral Air Force Station in Florida.

Howard Eisen, the ISS-RapidScat project manager at NASA's Jet Propulsion Laboratory, Pasadena, California, said, "Another mission had the idea of a two-piece payload first, but we beat them to the punch." The RapidScat team designed and built both parts of the science payload in an 18-month-long sprint so as to take advantage of an available berthing space on the [space station](#) and a free ride on a resupply mission. The other two-piece payload is still a year and a half from launch.

Each piece of the ISS-RapidScat [payload](#) is attached to the space station by a standardized interface called a Flight Releasable Attachment Mechanism, or FRAM. JPL's Stacey Boland, an engineer on the ISS-RapidScat team, explained, "The space station is almost like a Lego system, and a FRAM is a particular type of Lego block. We had to build on two separate Lego blocks because each block can only hold a certain amount of cargo."

Eisen noted, "We are not only robotically assembled, we are robotically installed." When the Dragon spacecraft reaches the station, a robotic arm will grapple it and bring it to its docking port. Using a different end effector—a mechanical hand—the arm will first extract the nadir adapter from the trunk and install it on an external site on the Columbus module of the space station. The arm will then pluck the RapidScat instrument assembly from the trunk and attach it to the nadir adapter, completing the installation. Each of the two operations will take about six hours.

Provided by NASA

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