

ATV-5 set to test new rendezvous sensors

March 19 2014



ATV Albert Einstein shortly after undocking from the International Space Station 28 October 2013. Automated Transfer Vehicles (ATVs) are the most complex space vehicles ever developed in Europe and are the largest and most capable resupply ships to dock with the Space Station. Credit: ESA/NASA

ESA's space freighter ATV Georges Lemaître, set for launch this summer, will test new rendezvous sensors in space as it approaches the International Space Station.

ESA has set its sights on allowing future spacecraft to rendezvous with

'uncooperative' targets, such as orbiting debris or a Mars sample capsule.

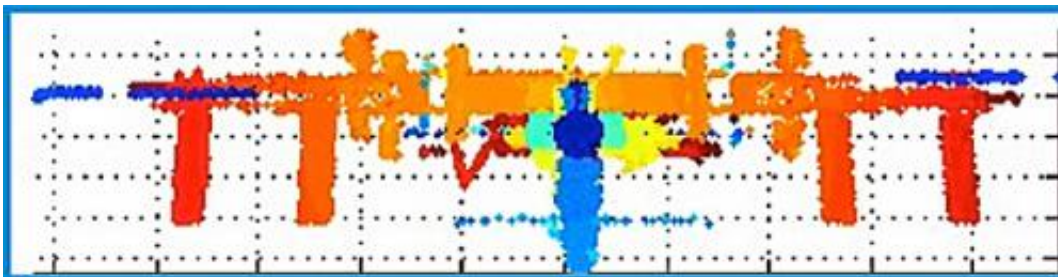
The LIRIS demonstrator – short for Laser InfraRed Imaging Sensors – on the last Automated Transfer Vehicle, or ATV, is the first step towards an uncooperative rendezvous in space.

On future missions, infrared cameras and lidar sensors – the light equivalent of radar – would scan the targets while onboard computers processed the data using new guidance navigation and control software.

At 30 km from the target, infrared cameras would be used before lidar took over from 3.5 km out to docking.

Since the first ATV was launched in 2008 they have docked flawlessly with the Space Station using satellite navigation at long range and [optical sensors](#) close in, bouncing light off reflectors on the orbital outpost.

ESA contractors Airbus Defence and Space, with Sodern and Jena-Optronik, proposed using ATV-5 to demonstrate the new approach for future projects. The [infrared camera](#) has been provided by French company Sodern, with German-based Jena-Optronik supplying the lidar.



A simulated image of how ATV-5's technology demonstrator will 'see' the International Space Station using lidar – the light equivalent of radar. The LIRIS demonstrator – short for Laser InfraRed Imaging Sensors – on the last Automated Transfer Vehicle, or ATV, is the first step towards an 'uncooperative' rendezvous

in space. ESA has set its sights on allowing future spacecraft to rendezvous with ‘uncooperative’ targets, such as orbiting debris or a Mars sample capsule. Credit: ESA

ATV-5 is the last in the series to deliver supplies to the Station and its mission offers a unique opportunity to [space](#)-test LIRIS for comparison with the operational navigation sensors. Recorders inside ATV's pressurised cargo bay will store the data for later download and analysis.



ATV Albert Einstein, Europe's supply and support ferry, docked with the International Space Station on 15 June 2013, some ten days after its launch from Europe's Spaceport in French Guiana. Credit: ESA/NASA

The hardware is now being installed on ATV at Europe's Spaceport in

Kourou, French Guiana.

Provided by European Space Agency

Citation: ATV-5 set to test new rendezvous sensors (2014, March 19) retrieved 20 April 2024 from <https://phys.org/news/2014-03-atv-rendezvous-sensors.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.