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ATV, the end of a successful mission

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Video (ESA): ATV Jules Verne re-entry video



After nearly 7 months since launch, ESA's Jules Verne Automated Transfer Vehicle (ATV) completed its mission to deliver supplies to the International Space Station and successfully performed its final deorbit boosts and controlled re-entry into the Earth's atmosphere today, at 15:31 CEST.

The re-entry and the two critical manoeuvres performed by Europe's ATV were monitored from ESA's ATV Control Centre in Toulouse, France.

A first deorbit boost, completed at 12:06 CEST, reduced the ATV's velocity by almost 30 m/s, making the ATV's near circular orbit more elliptical and reducing the lower orbiting altitude to 220 km – 330 km. The final thruster boost took place at 14:58 CEST, reducing the velocity by 70 m/s and placing the ATV on its controlled destructive re-entry trajectory. After this second boost, the ATV was placed in a tumbling motion to avoid rebound during re-entry and to assist in fragmenting the spacecraft.



The ATV entered the upper atmosphere at 15:31 CEST, at around 120 km. A few minutes after re-entry, the ATV broke up and at 15:43 CEST remaining pieces fell in an uninhabited region of the Pacific Ocean specifically chosen for the impact, bringing this highly successful mission to its end.

DLR chief Wörner: "Europe is now on a par with the US and Russia"

When evoking the successful ATV supply spacecraft mission, Professor Johann-Dietrich Wörner, Chairman of the Executive Board of the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR), stated: "The ATV unmanned supply spacecraft is one of the largest and technologically most sophisticated spacecraft ever developed and built in Europe. Not only does it provide Europe with independent access to the ISS, it also puts us on a par with the US and Russia as the leading space powers. Science and industry in Germany proved that we have the know-how to handle such highly complex projects."



On 9 March 2008, the ATV was launched from Kourou on an Ariane 5 ES launch vehicle. On 3 April 2008, it was the first European spacecraft to fully automatically dock with the International Space Station (ISS). The ATV programme is the European contribution to the maintenance and operations of the International Space Station: The first ATV, named "Jules Verne", carried almost five tonnes of food, breathing air, drinking water and fuel on board. Some of this fuel was meant for the Russian Zvezda service module, which was refuelled at the push of a button via the ATV's docking adaptor in mid-June.

In addition to this, the ATV has re-boosted the ISS to a higher orbit using its four main engines. This procedure is necessary to correct the station's orbit; however, up until now, only the Russian Progress supply craft and the American Space Shuttle were able to perform this task. The ATV also carried out a number of more minor manoeuvres to correct the orbit of the ISS, as well as a debris avoidance manoeuvre to eliminate any chance of collision with a piece of space debris. At this moment, four more ATV missions are planned up to 2013. The first of these is scheduled to take place in 2010.



ATV on 5 September 2008

The ATV supply spacecraft is about ten metres long and has a diameter of 4.5 metres. It has a total span of 22.3 metres when its solar arrays are deployed. The spacecraft's total mass at launch, including cargo, was almost 20 tonnes.

It consists of two bays, one for the propulsion system and one for the avionics. The latter also contains the "brain" of the spacecraft: the Fault Tolerant Computer (FTC) system. In addition, it has a pressurised cargo section which is entered by the astronauts from inside the ISS during loading and off-loading of the ATV. ATV is a joint European project led by the European Space Agency (ESA). The mission operations are monitored from ESA's control centre in Toulouse. DLR Oberpfaffenhofen monitors and coordinates the overall communications between the mission control centres in Toulouse, Redu (in Belgium), Houston and Moscow.

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