

ATV Payload

When the Jules Verne ATV is launched to the ISS it will be carrying around 8.3 tonnes of wet and dry cargo with an additional 2.3 tonnes of cargo support hardware. The cargo will be used in order to transport the ATV to the ISS, to reboost the ISS to a higher orbiting altitude, to resupply the ISS, and to deorbit the ATV with waste and items no longer needed on the ISS at the end of the mission. The cargo is split as follows:



Jules Verne ATV fuelling operations get underway at the European Spaceport in Kourou, French Guiana in January 2008. (Image: ESA /CNES/Arianespace/Photo optique video du CSG)

Wet Cargo

Propulsion propellant (5.8 tonnes)

This takes up by far the largest proportion of the ATV cargo. The ATV will use about 60% of the propellant in autonomously raising its orbit, rendezvousing and docking with the ISS, as well as verifying different manoeuvres on the way. It will also be used for deorbiting the ATV on conclusion of its mission. The remaining 40% of the propellant will be used by the ATV to reboost the ISS to a higher orbiting altitude in order to counter the effects of atmospheric drag, which cause the ISS to very slowly lose altitude, and for ISS attitude control. The propellant consists of two different fluids: monomethylhydrazine (MMH) accounting for around 2200 kg and mixed oxides of nitrogen (MON_3) accounting for around 3600 kg.

Refuelling propellant (860 kg)

Once attached to the Station, 860 kg of refuelling propellant will be transferred from the ATV to the ISS. This consists of two different fluids: the fuel unsymmetrical dimethylhydrazine (UDMH) and the oxidiser, nitrogen tetroxide (N_2O_4), which provides a source of oxygen so the fuel can ignite and burn in orbit. This will be used by the ISS for orbit and attitude control.

Water (270 kg)

This is what is known as potable water for use by the crew for drinking, food rehydration and oral hygiene.

Oxygen (20 kg)

This is used for resupply of oxygen in the atmosphere inside the ISS, which is similar to that on Earth. Once in orbit, the 20 kg of oxygen carried up by Jules Verne ATV, is manually injected by the crew into the ISS atmosphere.



NASA astronaut Marsha Ivins holds a luxury 19th century edition of the Jules Verne book 'De la Terre à la Lune' (From the Earth to the Moon) during the ATV Cargo Bench Review held at Thales Alenia Space Italia, in Turin, Italy, on 3 October 2007. (Image: ESA)

Dry Cargo

A total of 1.3 tonnes of dry cargo is being transported to the ISS inside the Integrated Cargo Carrier of the ATV. This includes 500 kg of food for the crew, 136 kg of spare parts for the European Columbus laboratory, which was launched and attached to the ISS in February 2008, 80 kg of clothing, and a number of additional items including public relations items to commemorate the Jules Verne ATV launch. This includes two Jules Verne manuscripts.

(Please note that all amounts listed are subject to rounding-off)