

COMENIUS PROJECT 2013-2015

# Daily life on the ISS

Anicée Bandino





Introduction

---

# Daily life on the ISS

---

Would you like to discover the daily life of the astronauts on the International Space Station? Follow Frank De Winne, famous Belgian astronaut, who became the first European commander of the ISS in 2009.

Anicée Bandino

©European Space Agency





# What is ISS?

## READING COMPREHENSION

---

Read this information taken from the **ESA website** and you will learn some basic facts about the International Space Station.

In partnership with the United States, Russia, Japan and Canada, Europe is sharing in the greatest international project of all time - the International Space Station. The 360-tonne International Space Station has more than 820 cubic metres of pressurised space - enough room for its crew of six persons and a vast array of scientific experiments.

Station construction began in November 1998 with the launch of Russia's Zarya module. Assembly was delayed due to the tragic loss of Space Shuttle Columbia, which also resulted in the decision to retire all Space Shuttles after completion of the Station. The last major part of the Space Station delivered by a Space Shuttle was the AMS-02 instrument in May 2011.

One more pressurised module will be attached to the Station: Russia's Nauka Multipurpose Laboratory Module is as big as Zarya and Zvezda. It will be installed on the Earth-facing docking port of the Zvezda module.

### **European participation**

ESA is responsible for two key Station elements: the European Columbus laboratory and the Automated Transfer Vehicles (ATV).

The Columbus laboratory forms a substantial part of the Station's research capability. Fitted with ten interchangeable payload racks, Columbus is a

©European Space Agency



multifunction laboratory that specialises in research in fluid physics, materials science and life sciences.

Europe's second biggest contribution is the Automated Transfer Vehicle, a supply ship lifted into orbit on an Ariane-5 launcher.

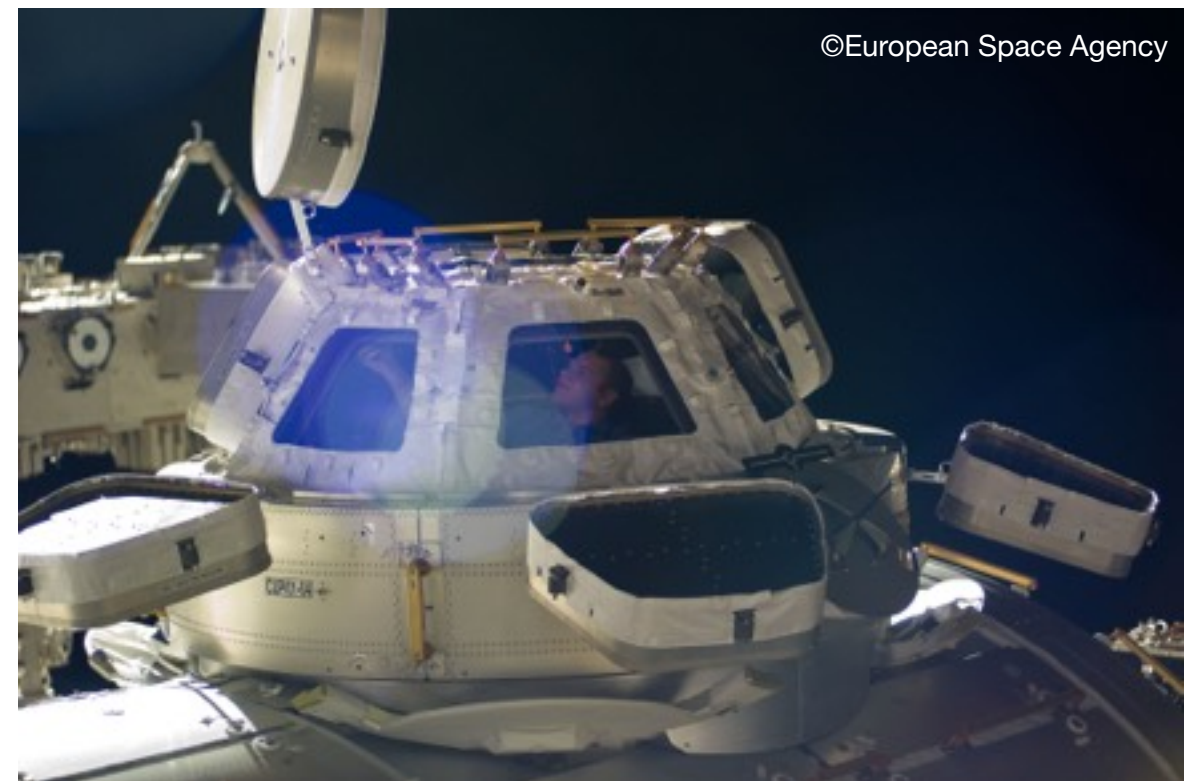
ATV carries up to 7 tonnes of cargo including provisions, scientific payloads and propellant. Once docked, the craft can use its engines to boost the Station to a higher orbit counteracting the faint drag of Earth's atmosphere.

After the first spacecraft, ATV Jules Verne, ATV Johannes Kepler was launched in 2011 and the next one ATV Edoardo Amaldi was

launched in 2012. The fourth, ATV Albert Einstein, was launched in 2013.

European scientists and engineers contribute to equipment and design across much of the International Space Station. More than a third of pressurised Station elements are designed and built in Europe.

The European-made Cupola is a dome-like structure with a panoramic window that is used as a control room for astronauts operating Station equipment. Cupola's circular top window is 80 cm in diameter making it the largest window ever to fly in space, while six side windows open the view to all directions.



©European Space Agency

The European Robotic Arm, to be launched in 2015 will be the only service Russian modules

In fact, European technology plays an important part in most Station sections. For example in the United States Destiny module, Europe has installed a material science rack and freezer units. The Japanese module Kibo also uses a European freezer.

### **European astronauts and users**

The first European astronaut flew in space in 1983 and the European Astronaut Centre in Cologne has been training men and women for missions since 1998. The first European to serve a tour of duty on the International Space Station was Umberto Guidoni who visited the Station in April 2001.

Only a tiny fraction of the Europeans working on the Space Station will ever go to space. Large dedicated teams of engineers, scientists, technicians and support personnel make spaceflight possible. European mission control centres run experiments and share Station command with Russia and the United States. Astronauts will always be part of a large scientific team on Earth.

Nine User Support and Operation Centres in Europe are responsible for the use and implementation of European payloads on the International Space Station. Under ESA management, the Operation Centres conduct tasks needed to prepare and operate

experiments. They act as the link between science teams on ground and the Space Station.

Participation in the International Space Station allows thousands of Europe's brightest people at hundreds of universities and companies in ESA's Member States to work on the leading edge of science and engineering.

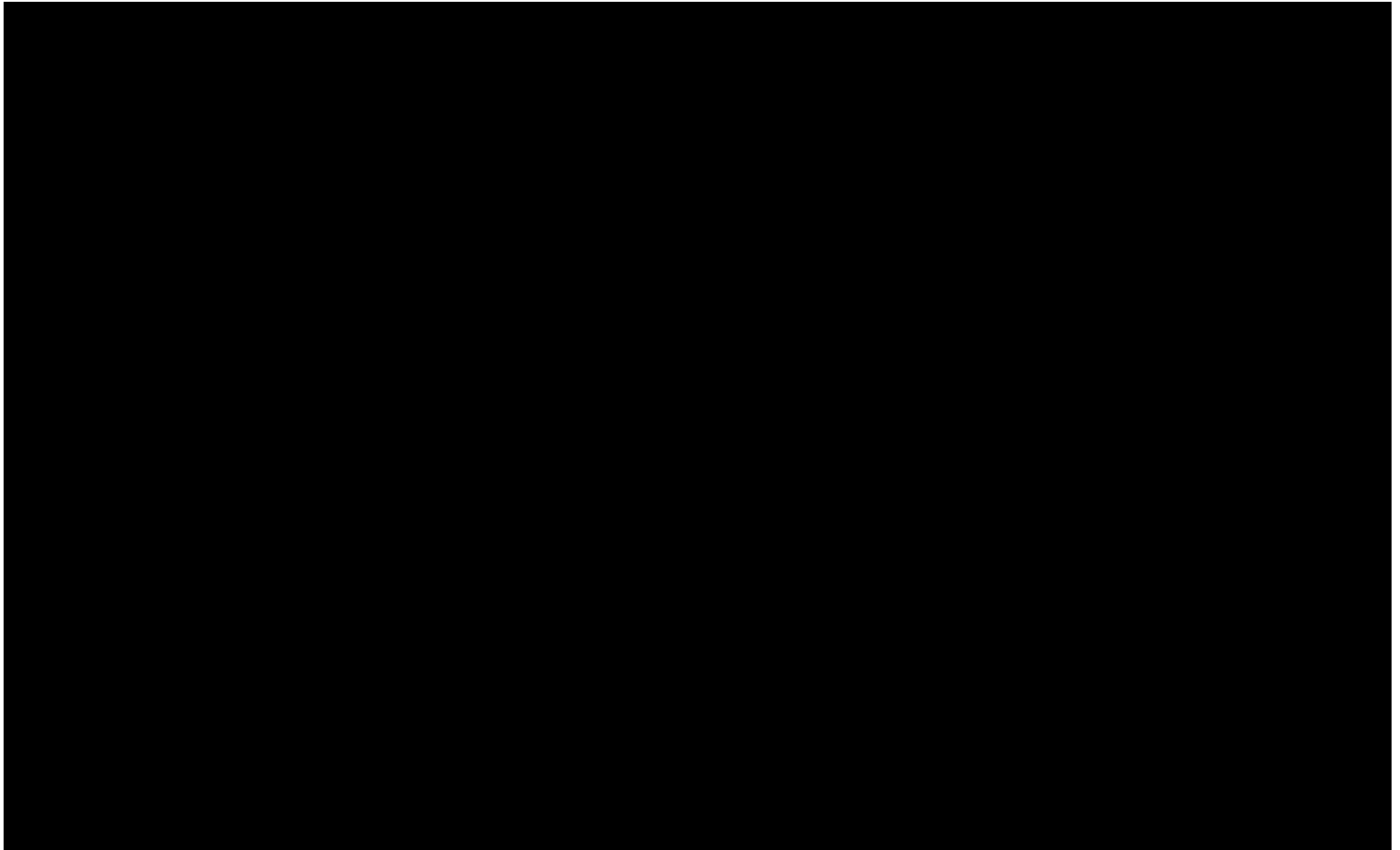
Now that the Station is fully assembled and astronauts spend more time on science people European scientists are among the first to benefit from the space research facilities they have helped to build.

**Interactive 1.1** Can you answer these questions?



*Take the quiz to see what you know about the ISS!*

**Video 1.1** Let's now have a tour inside the ISS.



Taken from: <https://www.youtube.com/watch?v=H8rHarp1GEE>



# Who is Frank De Winne?

## READING COMPREHENSION

---

Read the information about Frank De Winne, taken from the [ESA website](#).

### Personal data

Born in Ghent, Belgium on 25 April 1961, Frank De Winne is married to Lena Clarke and has three children. He enjoys football, fishing and gastronomy.

### Education

- 1979: graduated from the Royal School of Cadets, Lier, Belgium
- 1984: awarded the AIA Prize for the best thesis on his masters degree in telecommunications and civil engineering from the Royal Military Academy, Brussels, Belgium
- 1991: completed the Staff Course at the Defence College in Brussels, gaining the highest distinction
- 1992: graduated from the Empire Test Pilot's School in Boscombe Down, United Kingdom, where he was awarded the McKenna Trophy

### Organisations

Goodwill Ambassador for UNICEF Belgium  
Chairman of the Forum Space and Education  
Member of the SESAR Scientific Committee

## Special honours

- 1997: first non-American pilot to receive the Joe Bill Dryden Semper Viper Award for demonstrating exceptional skills during a flight
- 1999: appointed Officier in de Orde van Oranje Nassau by the Dutch Queen for showing leadership during operation Allied Force
- 2003: awarded the Medal of Friendship by the Russian Federation
- 2003: received an honorary doctorate from the University of Limburg

## How did Frank De Winne become an astronaut?

**Video 1.2** Let's watch Frank De Winne's interview.



Taken from: <https://www.youtube.com/watch?v=Uwf1m6AOA4k>

## Spaceflight experience

From 30 October to 10 November 2002, Frank flew the Odissea mission, a support flight to the International Space Station. He served as a flight engineer on the updated Soyuz TMA spacecraft on launch, and on a Soyuz TM for reentry.

Frank's prime task of the 11-day mission was to replace the Soyuz TM-34 vehicle attached to the Space Station with the new Soyuz TMA-1.

During his nine days spent on the Space Station, Frank ran 23 experiments in life and physical sciences and education, including experiments in Europe's Microgravity Science Glovebox. The mission was sponsored by the Belgian Federal Office for Scientific, Technical and Cultural Affairs.

From 27 May to 1 December 2009 Frank was sent on the OasISS mission, a long-duration flight to the International Space Station. As part of Expedition 21 Frank became the first European commander of the orbital outpost. He was also Soyuz TMA-15 and Expedition 20 flight engineer.

One of Frank's key tasks during the mission was to operate the Station's robotic arm to dock Japan's first HTV cargo vehicle. He was also the main operator of the Japanese robotic arm, used to transfer experiments to Japan's external payload facility on the country's Kibo Laboratory. More than 1000 crew hours were



dedicated to science. Special events were also held to support UNICEF's Belgium WaSH campaign.

Frank chaired the technical committee of the second EU-ESA Space Exploration Conference in Brussels in 2010.

### **Current assignment**

Head of the European Astronaut Centre since 1 August 2012.

**Interactive 1.2** Can you answer these questions?



*Take the quiz to see what you know about Frank De Winne!*

---

# Daily life on the ISS

---

How do the astronauts live and perform daily tasks up on the ISS? How do they wash themselves, brush their teeth, or go to the toilet? How do they manage the water supplies on the ISS? Let's have an insight of what the astronauts' daily life is like on the International Space Station.





# Frank De Winne's video

## LISTENING COMPREHENSION

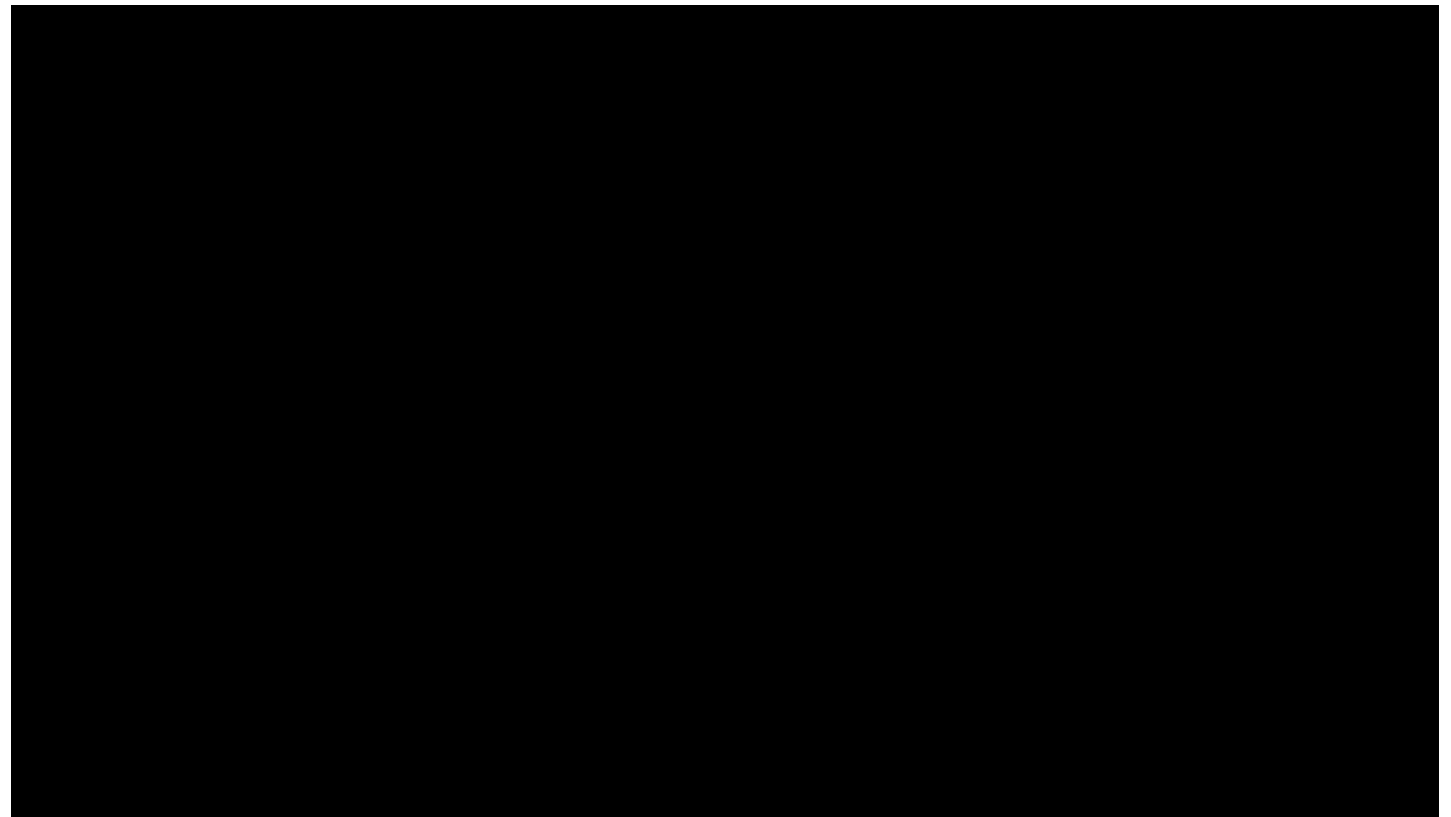
You are going to watch a video made by Frank De Winne about how astronauts live on the ISS.

**Interactive 2.1** Can you answer these questions?



*Watch the video, then take the quiz to see what you know about the daily life on the ISS!*

**Video 2.1** Frank De Winne: Living on the ISS



Taken from: <https://www.youtube.com/watch?v=pSTp2KOxIOM>



## Conclusion

---

# Goodbye!

---

We hope you had fun and learned interesting things about the ISS and the daily life of its astronauts.

If you are interested in the subject, you can find more information on the [ESA website](#).

