

# Columbus, one year on orbit

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A view of the European Columbus laboratory installed in its new home on the International Space Station. Columbus was launched with Space Shuttle Atlantis on 7 February 2008. The new module was installed on the starboard side of the Harmony module during a spacewalk on 11 February 2008. Credits: ESA/NASA

Exactly one year ago today, the European Columbus laboratory arrived at its berth on the International Space Station, signalling the start of a new era for Europe in human spaceflight.

At 22:44 CET (21:44 UT) on 11 February 2008, NASA astronaut and ISS Commander Peggy Whitson initiated final capture of the newly delivered module. From that moment on, firmly attached to the right side of the Node 2 module, the European Columbus laboratory officially became a part of the International Space Station (ISS). Europe now had its first permanent human outpost in orbit.

"Columbus provides ESA with its very own piece of orbital

infrastructure. This allows us to perform our own ISS utilisation programme; it also gives Europe's Astronaut Corps flight opportunities and it provides us with invaluable experience in the operation of a human spaceflight infrastructure," explains Bernardo Patti, ESA ISS Programme Manager.

One day later, on 12 February 2008, the hatches between Columbus and the Space Station were opened and the crew entered the module for the first time in orbit. ESA astronauts Léopold Eyharts and Hans Schlegel took the lead in commissioning the module. Eyharts then remained on board the Station for a total of seven weeks completing the commissioning activities and starting the first scientific experiments.

All the facilities launched with Columbus - the four rack facilities inside the module, but also the two external payloads - have now been used to collect valuable scientific data. Experiments have been conducted in fields as diverse as plant biology, exobiology, solar physics, human physiology and fluid science.

"In view of the very limited crew resources so far, we can be quite happy with what Columbus has achieved scientifically in this first year, both in terms of yield, but also in terms of relative success," says Martin Zell, ESA Head of ISS Utilisation Department. "We have also demonstrated that we can maintain and upgrade the facilities; that they really are modular and adaptable to any experiment through software updates or whatever it takes."

"We are very happy and proud of what has been achieved so far," adds Patti, reflecting on the first year of Columbus in orbit. "It should not be considered as the completion of a phase of the ISS Programme, but rather today's celebration is just the start of the Columbus journey."

Like Columbus, the International Space Station Programme, which itself

marked 10 years in orbit last November, continues to move forward. Since the addition of Columbus, Japan's Kibo laboratory has been installed on the opposite side of Node 2 and the structure of the ISS is nearing completion.

This May, with the arrival of the Soyuz 19S spacecraft, there will be another major milestone for the orbital outpost when the Station's permanent crew increases from three to six for the first time. Amongst the first crew of six will be Belgian ESA astronaut Frank De Winne who is also set to become the first European ISS Commander from October 2009.

With a six-strong crew and with De Winne staying on the Station for six months, there will be a real boost of crew time available. "Between now and the end of the year we have more than 55 experiments lined up. Columbus is now well prepared for these experiments," says Zell. "We are ready for Frank to arrive and for the science to pick-up considerably."

A state-of-the-art multidisciplinary scientific laboratory, Columbus, like the ISS in general, was also conceived as a test bed for future human exploration missions. "Not only to test the behaviour of human beings in an environment away from the protection of Earth, but also to test technologies that can be useful for human exploration of the Solar System," explains Simonetta Di Pippo, ESA Director of Human Spaceflight. "We are gradually increasing the number of technologies that we want to test on the Space Station. Columbus is one of the places these technologies will be tested in cooperation with our international partners."

Now, buoyed up by the successes of both Columbus and Jules Verne, the first Automated Transfer Vehicle (ATV), ESA has started to look towards future human spaceflight activities. "With the success of

Columbus and ATV, ESA not only takes a full fledged role in the ISS partnership but gains momentum in human spaceflight and exploration. We are pursuing the mandate received from the European Ministers to define a European cargo transportation system to serve the ISS and prepare future decisions in this strategic field," adds Di Pippo. "All these undertakings are source of innovation and highly technological work that contribute to Europe's competitiveness and will reinforce its role as a strong and reliable partner in a global exploration endeavour."

Provided by ESA

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