



EAC trains all ISS crews on the European-contributed elements of the ISS programme

The Dutch Soyuz mission, 'DELTA' carrying ESA astronaut Andre Kuipers was launched on 19 April and concluded with a successful landing on 30 April. He conducted the most extensive experiment programme yet undertaken by a European astronaut on the International Space Station (ISS), performing a total of 21 experiments, as well as participating in several educational and communications activities. During the Soyuz flight to the ISS, he played an active part in piloting and docking the spacecraft, in his role as Flight Engineer. The European Astronaut Centre (EAC) was in charge of crew operations, medical support, and training coordination with Russia, and for the coordination and implementation of payload-related training activities. Although the prime responsibility for the ISS crew lies with the Mission Control Centre in Houston, the ESA Medical Operations team monitors the ISS systems and the health of the ESA astronauts in real time from its consoles at EAC.

The next mission involving ESA astronauts will be the 10-day Italian Soyuz mission 'ENEIDE', scheduled for launch on 15 April 2005 with ESA astronaut Roberto Vittori. He and his back-up Robert Thirsk (from the Canadian Space Agency) have been training at the Gagarin Cosmonaut Training Centre (GCTC) near Moscow, and preparations for the mission and the experimental programme are already well advanced.

Meanwhile, Thomas Reiter and Leopold Eyharts have been training both at Johnson Space Center and at GCTC for the first Long Duration Mission onboard the ISS of a European astronaut, planned for later in 2005. Christer Fuglesang, who is scheduled to fly on Shuttle STS-116 as a NASA Mission Specialist, has continued training, but at a reduced pace due to the delay induced by the grounding of the Shuttles

Significant progress was achieved during the year in the development of training material, with several new training facilities having been delivered to EAC. The Training Models of the Protein Crystallisation Diagnostics Facility, the European Physiology Modules (including Cardiolab and its sub-modules) and the European Transport Carrier were delivered, and



The ESA Medical Operations team at work from its consoles at EAC



The new ATV crew-training mock-up at EAC

Consequently, everything is now ready for the ATV training for the Expedition-13 primary and back-up crews, which is due to start in the second half of 2005. The content and flow of the ATV training has also been harmonised with the training programmes of the other ISS Partners.

the Acceptance Reviews for the Fluid-Science Laboratory and European Drawer Rack Training Models were successfully completed in February and July, respectively. In October, the Biolab Training Model was officially handed over to EAC and the Automated Transfer Vehicle (ATV) Onboard Crew Trainer was delivered. The Soyuz Simulator was installed in November, and the Final Acceptance Review for the ATV Mock-up was performed early in December.

During the year, EAC conducted about 18 weeks of training for astronaut crews, programme managers, and ESA and NASA flight controllers. In March and September, a class of six ISS astronauts (five from ESA and one from the Canadian Space Agency) received Columbus Science Payload and ATV Advanced Training. Three week-long sessions of Columbus System User Level Training were provided for payload engineers, Facility Responsible Centre personnel and Columbus flight controllers. Columbus System Advanced Training was provided to payload instructors and Payload Training Unit personnel. Three biomedical engineers completed Columbus System Training and internal training on ISS countermeasure devices. The Columbus Control Centre ground controllers were given ATV and Payload Advanced Training at EAC during October and November, and an ESA Training Academy course for about 25 ATV Control Centre staff was held in November. The first Human Behaviour and Performance Pilot Training with the Italian Army, which includes team-building, leadership and multi-cultural training, took place in the last quarter of the year.

In summer 2004, ATV courses and lessons, as well as the ATV facilities and the certification process for ATV instructors, were finalised.

The first commercial 'ESA Space Training' course was held, with eight participants, at the end of November and that programme is now fully operational. Although any individual may purchase a ticket, the initiative mainly targets managers from non-space companies.

EAC received a significant number of visitors during the year. The German Space Days, held during the weekend of 18-19 September, and supported by EAC staff and most ESA astronauts, attracted some 100 000 visitors. The opening *Night of the Astronauts* gala in the Cologne Arena on 17 September was attended by about 5000 people. In view of the general public's strong interest, EAC, in association with the German Space Agency (DLR), will develop a 'Space Learning Centre' in Cologne, in the form of an educational park focussing on space and aeronautical activities. The Centre will provide information on space activities and their benefits for humankind, as well as education and training in aerospace subjects for students and teachers, and facilities for congresses.

Just some of the many thousands of visitors to EAC during the German Space Days

