

## STS-116 Crew: Christer Fuglesang (ESA)



ESA astronaut Christer Fuglesang. (Image: ESA)

### Personal data

Born 18 March 1957 in Stockholm, Sweden. Married to the former Elisabeth Walldie. They have three children. He enjoys sports, sailing, skiing, frisbee, games and reading.

### Education

Graduated from Bromma Gymnasium, Stockholm in 1975 and received a Master of Science degree (Engineering Physics) from the Royal Institute of Technology (KTH), Stockholm in 1981. Received a Doctorate in Experimental Particle Physics in 1987 and became a Docent in Particle Physics in 1991 at the University of Stockholm.

### Special honours

He was awarded an Honorary Doctorate from Umea University, Sweden in October 1999.

### Experience

As a graduate student, Fuglesang worked at CERN (European Research Centre on Particle Physics) in Geneva on the UA5 experiment, which studied proton-antiproton collisions. In 1988 he became a Fellow of CERN, where he worked on the CPLEAR experiment studying the subtle CP-violation of Kaon-particles. After a year he

became a Senior Fellow and head of the particle identification subdetector. In November 1990, Fuglesang obtained a position at the Manne Siegbahn Institute of Physics, Stockholm but remained stationed at CERN for another year working towards the new Large Hadron Collider (LHC) project. Since 1980, (when stationed in Sweden) Fuglesang taught mathematics at the Royal Institute of Technology (KTH).

In May 1992, Fuglesang was selected to join the Astronaut Corps of ESA based at the European Astronaut Centre (EAC) in Cologne, Germany.

In 1992 he received an introductory training programme at EAC and a four-week training programme at TsPK (Cosmonaut Training Centre) in Star City, Russia, with a view to future ESA-Russian collaboration on the Mir Space Station. In July 1993 he completed basic training at EAC.

In May 1993, Fuglesang and fellow ESA astronaut, Thomas Reiter, of Germany, were selected for the Euromir 95 mission and commenced training at TsPK (Moscow) in preparation for their onboard engineer tasks, extra-vehicular activities (spacewalks) and operation of the Soyuz spacecraft. The Euromir 95 experiment training was organised and mainly carried out at EAC.

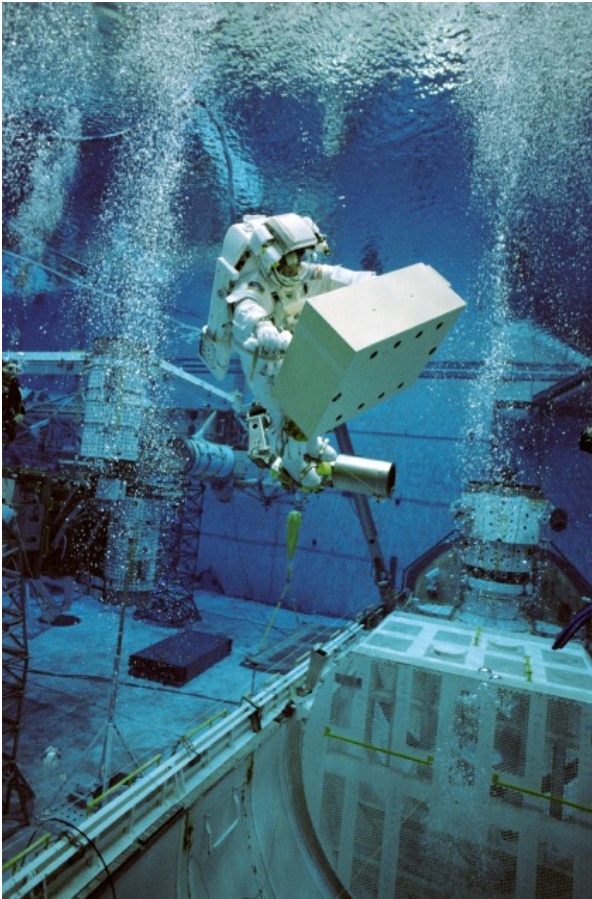
On 17 March 1995 he was selected as member of Crew 2 for the Euromir 95 mission, joining Genadi Manakov and Pavel Vinogradov. During the mission, which lasted from 3 September to 29 February 1996, Fuglesang was the prime Crew Interface Coordinator (CIC). From the Russian Mission Control Centre (TsUP) in Kaliningrad (now Korolyov), he was the main contact with ESA astronaut Thomas Reiter in Mir, and acted as coordinator between Mir and the Euromir 95 Payloads Operations Control Centre, located in Oberpfaffenhofen, Germany, and the project management.

Between March and June 1996, he underwent specialised training in TsPK on Soyuz operations for undocking, atmospheric re-entry and landing.

Christer Fuglesang entered the Mission Specialist Class at NASA/Johnson Space Center, Houston, in August 1996 and qualified for flight assignment as a Mission Specialist in April 1998.

## The Crew

From May to October 1998, he resumed training at TsPK on Soyuz-TM spacecraft operations for de-docking, atmospheric re-entry and landing. He was awarded the Russian 'Soyuz Return Commander' certificate, which qualifies him to command a three-person Soyuz capsule on its return from space.



ESA astronaut Christer Fuglesang during an EVA simulation for the STS-116 mission at the Johnson Space Center's Neutral Buoyancy Laboratory. (Image: NASA)

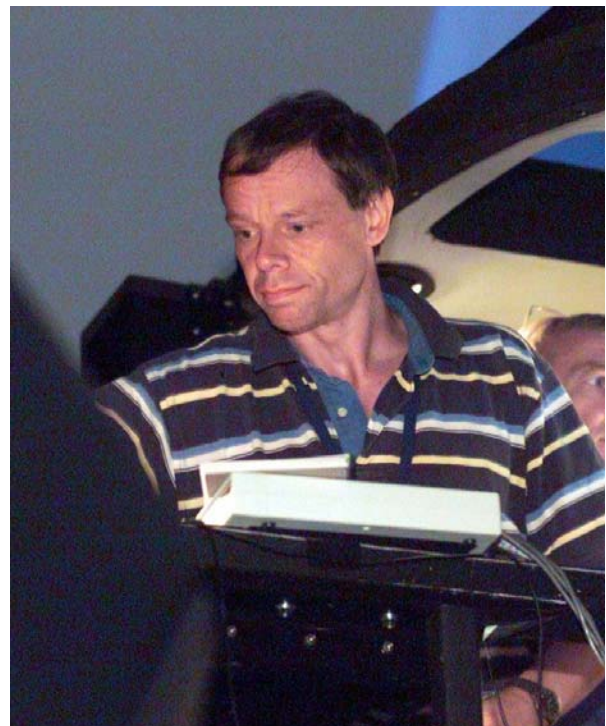
In October 1998 he returned to NASA-JSC and was assigned to technical duties in the Astronaut Office Station Operations System Branch on Russian Transfer Vehicles (i.e. Soyuz/Progress). Later he worked as prime Increment Crew Support Astronaut for the Expedition Corps of the 2nd International Space Station increment crew.

Christer Fuglesang has continued with some scientific work and was involved with the SiEye experiment which investigated light flashes in astronauts' eyes on Mir between 1995 and 1999. This work is continuing on the ISS with the Alteino detector, launched in 2002 and the ALTEA apparatus, which was delivered to the ISS in July

2006 by the STS-121 mission. He has also initiated the DESIRE Project to simulate and estimate the radiation environment inside ISS.

### Current assignment

Christer Fuglesang is a member of ESA's European Astronaut Corps, whose homebase is the European Astronaut Centre, located in Cologne, Germany. He provides collateral duties in the NASA-JSC Astronaut Office and has most recently worked with upcoming payloads for the ISS.



ESA astronaut Christer Fuglesang during Systems Engineering Simulator Crew Training in a Shuttle Flight Deck Simulator at the Johnson Space Center. (Image: NASA)

At the end of February 2002, Christer Fuglesang was assigned as a Mission Specialist to the STS-116 Space Shuttle mission, scheduled to visit the International Space Station (ISS) towards the end of 2006. He will be the first Swedish astronaut to fly to space. The crew of this mission, also referred to as the 12A.1 ISS assembly flight, is planned to achieve quite a number of important operations including the assembly of a new segment to the ISS truss and the exchange of one ISS expedition crewmember: ESA astronaut Thomas Reiter for NASA astronaut Sunita Williams. Christer Fuglesang will play a major role in this mission, in particular with the performance of Extra Vehicular Activities (EVAs) to attach the new hardware to the Space Station and to change the Station's electrical power system.

## STS-116 Crew: Mark Polansky (NASA)



STS-116 Commander Mark Polansky. (Image: NASA)

### Personal data

Born 2 June 1956 in Paterson, New Jersey, USA. Enjoys ice hockey, snow skiing, light aircraft flying, music, and the arts. Married to the former Lisa Ristow of San Antonio, Texas. They have one daughter.

### Education

Received a bachelor of science degree in aeronautical and astronautical engineering, and a master of science degree in aeronautics and astronautics, from Purdue University, both in 1978.

### Experience

Polansky received a US Air Force commission upon graduation from Purdue University in 1978. He earned his pilot wings in January 1980 at Vance Air Force Base (AFB), Oklahoma. From 1980 to 1983, he was assigned to Langley AFB, Virginia, where he flew the F-15 aircraft. In 1983, Polansky transitioned to the F-5E aircraft and served as an Aggressor Pilot, where he trained tactical aircrews to defeat adversary aircraft tactics. He was assigned in this capacity to Clark Air Base, Republic of the Philippines, and Nellis AFB, Nevada, until he was selected to attend USAF Test Pilot School, Edwards AFB, California,

in 1986. Upon graduation, he was assigned to Eglin AFB, Florida, where he conducted weapons and systems testing in the F-15, F-15E, and A-10 aircraft. Polansky left active duty in 1992 to pursue a career at NASA. He has logged over 5,000 flight hours in over 30 different aircraft.

### NASA experience

Polansky joined NASA in August 1992, as an aerospace engineer and research pilot. He was assigned to the Aircraft Operations Division of the Johnson Space Center. His primary responsibilities involved teaching the astronaut pilots Space Shuttle landing techniques in the Shuttle Trainer Aircraft and instructing astronaut pilots and mission specialists in the T-38 aircraft. Polansky also conducted flight testing of the NASA T-38 avionics upgrade aircraft.

Selected as an Astronaut Candidate by NASA in April 1996, Polansky began training in August 1996. Having completed two years of training and evaluation, he was initially assigned as a member of the Astronaut Support Personnel team at the Kennedy Space Center, supporting Space Shuttle launches and landings. He served as pilot on STS-98 (2001) and has logged nearly 13 days in space. Polansky was Chief of the CAPCOM Branch from April 2002 to December 2002. He served as Chief Instructor Astronaut from April 2003 to January 2004. He has also served as Chief of the Return to Flight and Orbiter Repair Branches. Polansky is assigned to command the crew of STS-116, an assembly flight to the International Space Station.

### Spaceflight experience

STS-98 Atlantis (9-20 February, 2001). The STS-98 crew continued the task of building and enhancing the International Space Station by delivering the US laboratory module Destiny. The Shuttle spent seven days docked to the Station while Destiny was attached and three spacewalks were conducted to complete its assembly. The crew also relocated a docking port, and delivered supplies and equipment to the resident Expedition 1 crew.

## STS-116 Crew: William Oefelein (NASA)



STS-116 pilot William Oefelein. (Image: NASA)

### Personal Data

Born 29 March 1965 in Ft. Belvoir, Virginia. He has two children. Recreational interests include weight lifting, wake and snow boarding, fishing, and backcountry hiking.

### Education

Bachelor of Science degree in Electrical Engineering from Oregon State University in 1988 and a Master of Science degree in Aviation Systems from the University of Tennessee Space Institute, 1998.

### Experience

Oefelein received his commission as an Ensign in the United States Navy from Aviation Officer Candidate School in Pensacola, Florida in 1988. He entered flight training in Texas in 1989 and was designated a Naval Aviator in September 1990. He then reported to Marine Fighter/Attack Training Squadron 101 at Marine Corps Air Station El Toro, California for initial F/A-18 training. Upon completion of training, he was assigned to Strike Fighter Squadron 146 at Naval Air Station Lemoore, California where he made overseas deployments aboard the aircraft carrier USS Nimitz to the Pacific and Indian Oceans and

the Persian Gulf. While assigned to VFA-146, he attended the US Navy Fighter Weapons School, Topgun, and was assigned as the Squadron Air-to-Air Weapons and Tactics Officer. Oefelein was selected for the United States Naval Test Pilot School at Naval Air Station Patuxent River, Maryland and began the course in January of 1995. After graduation in December 1995, he was assigned to Strike Aircraft Test Squadron as an F/A-18 Project Officer and Test Pilot.

In February 1997, he went back to the United States Naval Test Pilot School as an Instructor flying the F/A-18, T-2, and U-6 aircraft. In February 1998, he transferred to Carrier Air Wing 8, Naval Air Station Oceana, Virginia where he was assigned duties as the Strike Operations Officer when he was selected for the astronaut programme.

Oefelein has logged over 3000 hours in more than 50 aircraft and has over 200 carrier arrested landings.

### NASA Experience

Selected by NASA in June 1998, Oefelein reported to Johnson Space Center in August 1998. Having completed 2 years of training and evaluation, he is qualified for space flight assignment as a pilot. Recently, Oefelein was assigned technical duties in the Astronaut Office Advanced Vehicles Branch and CAPCOM Branch.

Oefelein is assigned as Pilot on the STS-116 mission to the International Space Station. He will be responsible for systems operations and assisting in the rendezvous for docking to the Station.

## STS-116 Crew: Robert Curbeam (NASA)



STS-116 Mission Specialist Robert Curbeam. (Image: NASA)

### Personal Data

Born 5 March 1962, in Baltimore, Maryland. Two children. He enjoys weightlifting, backpacking and sports.

### Education

Bachelor of science degree in aerospace engineering from the United States Naval Academy, 1984. Master of science degree in aeronautical engineering from the Naval Postgraduate School, 1990. Degree of aeronautical & astronautical engineering from the Naval Postgraduate School, 1991.

### Experience

Upon graduation from the US Naval Academy, Curbeam commenced US Naval Flight Officer training in 1984. In 1986 he reported to Fighter Squadron 11 (VF-11) and made overseas deployments to the Mediterranean and Caribbean Seas, and the Arctic and Indian Oceans on board the USS Forrestal (CV-59). During his tour in VF-11, he also attended US Navy Fighter Weapons School (Topgun). Upon completion of Test Pilot School in December 1991, he reported to the Strike Aircraft Test Directorate where he was the project officer for the F-14A/B Air-to-Ground

Weapons Separation Programme. In August 1994, he returned to the US Naval Academy as an instructor in the Weapons and Systems Engineering Department.

### NASA Experience

Selected by NASA in December 1994, Curbeam reported to the Johnson Space Center in March 1995. After completing a year of training and evaluation, he was assigned to the Computer Support Branch in the Astronaut Office. He is a veteran of two space flights, STS-85 in 1997 and STS-98 in 2001, and has logged nearly 25 days in space, including over 19 EVA hours during three spacewalks.

Curbeam served as a spacecraft communicator (CAPCOM) responsible for relaying all voice communication between Mission Control and crews aboard the Space Shuttle and International Space Station, CAPCOM Branch Chief, and Payloads Group Lead, responsible for representing the crew office in the design, training and operation of on orbit experiments. During the spring of 2002, he served as Deputy Associate Administrator for Safety and Mission Assurance, at NASA Headquarters, Washington, D.C. During the STS-116 mission he is scheduled to carry out EVAs with ESA astronaut Christer Fuglesang.

### Space Flight Experience

STS-85 (7-19 August, 1997) was a 12-day mission during which the crew deployed and retrieved the CRISTA-SPAS payload of the German Aerospace Center (DLR), operated the Japanese Manipulator Flight Demonstration robotic arm, studied changes in the Earth's atmosphere and tested technology destined for use on the future International Space Station.

STS-98 (7-20 February, 2001) continued the task of building and enhancing the International Space Station by delivering the US laboratory module Destiny. The Shuttle spent seven days docked to the station while Destiny was attached. In helping to complete its assembly Curbeam logged over 19 EVA hours on 3 space walks. The crew also relocated a docking port, and delivered supplies and equipment to the resident Expedition 1 crew.

## STS-116 Crew: Joan Higginbotham (NASA)



STS-116 Mission Specialist Joan Higginbotham. (Image: NASA)

### Personal Data

Born 3 August 1964 in Chicago, Illinois. She enjoys body building (weightlifting), cycling, music, motivational speaking.

### Education

Received a Bachelor of Science degree in Electrical Engineering from the Southern Illinois University at Carbondale, in 1987, a Masters of Management from the Florida Institute of Technology in 1992, and a Masters in Space Systems from the Florida Institute of Technology in 1996.

### NASA Experience

Joan Higginbotham began her career in 1987 at the Kennedy Space Center, Florida, as a Payload Electrical Engineer in the Electrical and Telecommunications Systems Division. Within six months she became the lead for the Orbiter Experiments on Space Shuttle Columbia. She later worked on the Shuttle payload bay reconfiguration for all Shuttle missions and conducted electrical compatibility tests for all payloads flown aboard the Shuttle. She was also tasked by Kennedy Space Center management to undertake several special assignments where she served as the Executive Staff Assistant to the Director of Shuttle Operations

and Management, led a team of engineers in performing critical analysis for the Space Shuttle flow in support of a simulation model tool, and worked on an interactive display detailing the Space Shuttle processing procedures at Spaceport USA (Kennedy Space Center's Visitors Center).

Higginbotham then served as backup orbiter project engineer for Space Shuttle Atlantis, where she participated in the integration of the orbiter docking station into the space shuttle used during Shuttle/Mir docking missions. Two years later, she was promoted to lead orbiter project engineer for Space Shuttle Columbia. In this position, she held the technical lead government engineering position in the firing room where she supported and managed the integration of vehicle testing and troubleshooting. She actively participated in 53 space shuttle launches during her 9-year tenure at Kennedy Space Center.

Selected as an astronaut candidate by NASA in April 1996, Joan Higginbotham reported to the Johnson Space Center in August 1996. Since that time, she had been assigned technical duties in the Payloads and Habitability Branch, the Shuttle Avionics and Integration Laboratory, and the Kennedy Space Center Operations Support Branch, where she tested various modules of the International Space Station for operability, compatibility, and functionality prior to launch. She worked in the Astronaut Office CAPCOM (Capsule Communicator) Branch in the startup and support of numerous space station missions and space shuttle missions. She was also assigned to the Robotics Branch. Her last assignment was as the Lead for the International Space Station Systems Crew Interfaces Section. Joan is assigned to the crew of STS-116 where her primary task will be to operate the Space Station Remote Manipulator System.

## STS-116 Crew: Nicholas Patrick (NASA)



STS-116 Mission Specialist Nicholas Patrick. (Image: NASA)

### Personal Data:

Nicholas Patrick was born in 1964 in North Yorkshire in the United Kingdom. He became a US Citizen in 1994. He is married. His recreational interests include flying, reading, fixing and building things, hiking, and scuba diving.

### Education:

Bachelor and Master of Arts in engineering from the University of Cambridge, England in 1986 and 1990; and a Master of Science and Doctor of Philosophy in mechanical engineering from the Massachusetts Institute of Technology in 1990 and 1996.

### Experience:

While at university, Dr. Patrick learned to fly as a member of the UK Royal Air Force's Cambridge University Air Squadron, and spent his summers as a civil engineer in New York and Connecticut. After graduating from Cambridge, he moved to Boston, Massachusetts, where he worked as an engineer for the Aircraft Engines Division of GE.

He then attended the Massachusetts Institute of Technology (MIT), where he was a teaching assistant and then a research assistant in the

Human-Machine Systems Lab in the Department of Mechanical Engineering. His research interests included telerobotics, aviation psychology, decision theory, optimisation, and econometrics. While at MIT, he worked as a flight instructor at Hanscom Field's East Coast Aero Club and as a statistician and programmer for a medical and robotic products company.

Upon completion of his doctorate, Dr. Patrick joined Boeing's Commercial Airplane Group in Seattle, Washington, where he worked in Flight Deck Engineering as a systems and human-factors engineer on many of Boeing's commercial aircraft models.

Dr. Patrick has logged over 1,900 hours as a pilot in more than 20 types of airplane and helicopter, including over 800 hours as a flight instructor in the Boston, Seattle, and Houston areas.

### NASA Experience:

Dr. Patrick reported to NASA's Johnson Space Center for astronaut training in August 1998. His initial training included scientific and technical briefings, intensive instruction in Shuttle and International Space Station systems, and physiological, survival, and classroom training in preparation for T-38 flight.

Dr. Patrick is assigned as a mission specialist on the STS-116 mission.

## STS-116 Crew (ascent phase): Sunita Williams (NASA)



NASA astronaut Sunita Williams (Image: NASA)

### Personal Data

Born 19 September 1965 in Euclid, Ohio. Married to Michael Williams. Recreational interests include running, swimming, biking, triathlons, windsurfing, snowboarding and bow hunting.

### Education

Received a bachelor's degree in Physical Science from the US Naval Academy in 1987 and a Master's degree in Engineering Management from the Florida Institute of Technology in 1995.

### Experience

Williams received her commission as an Ensign in the United States Navy from the United States Naval Academy in May 1987. After a six-month temporary assignment at the Naval Coastal System Command, she received her designation as a Basic Diving Officer and then reported to Naval Aviation Training Command. She was designated a Naval Aviator in July 1989. She then reported to Helicopter Combat Support Squadron 3 for initial H46, Seaknight, training. Upon completion of this training, she was assigned to Helicopter Combat Support Squadron 8 in Norfolk, Virginia, and made overseas deployments to the Mediterranean, Red Sea and the Persian Gulf.

In September 1992 she was the Officer-in-Charge of an H-46 detachment sent to Miami, Florida for Hurricane Andrew Relief Operations onboard USS Sylvania. Williams was selected for United States Naval Test Pilot School and began the course in January 1993. After graduation in December 1993, she was assigned to the Rotary Wing Aircraft Test Directorate as an H-46 Project Officer, and V-22 Chase Pilot in the T-2. While there she was also assigned as the squadron Safety Officer and flew test flights in the SH-60B/F, UH-1, AH-1W, SH-2, VH-3, H-46, CH-53 and the H-57.

In December 1995, she went back to the Naval Test Pilot School as an Instructor in the Rotary Wing Department and the school's Safety Officer. There she flew the UH-60, OH-6 and the OH-58. From there she was assigned to the USS Saipan (LHA-2), Norfolk, Virginia, as the Aircraft Handler and the Assistant Air Boss. Williams was deployed onboard USS Saipan when she was selected for the astronaut programme. She has logged over 2770 flight hours in more than 30 different aircraft.

### NASA Experience:

Selected by NASA in June 1998, she reported for training in August 1998. Astronaut Candidate Training included orientation briefings and tours, numerous scientific and technical briefings, intensive instruction in Shuttle and International Space Station systems, physiological training and ground school to prepare for T-38 flight training, as well as learning water and wilderness survival techniques.

Following a period of training and evaluation, Williams worked in Moscow with the Russian Space Agency on the Russian contribution to the International Space Station and with the first Expedition Crew to the ISS. Following the return of Expedition 1, Williams has worked within the Robotics branch on the ISS Robotic Arm and the follow on Special Purpose Dexterous Manipulator. As a NEEMO2 crewmember she lived underwater in the Aquarius habitat for 9 days.

Williams is assigned as Flight Engineer 2 of ISS Expedition 14 and, after arriving at the ISS on the STS-116 flight, will take over this role from ESA astronaut Thomas Reiter who has been a member of the permanent ISS crew since July 2006. Reiter will return to Earth with the Shuttle and the other STS-116 crew members at the end of the mission.

## STS-116 Crew (descent phase): Thomas Reiter (ESA)



ESA astronaut Thomas Reiter. (Credit: ESA)

### Personal data

Born 23 May 1958, in Frankfurt/Main, Germany, Thomas is married and has two sons. He enjoys fencing, badminton, cooking and playing the guitar.

### Education

Thomas Reiter has a Masters Degree in Aerospace Technology. He graduated from Goethe-High School in Neu-Isenburg near Frankfurt, Germany in June 1977, from the German Armed Forces University in Neubiberg, near Munich, in December 1982 and from the British Empire Test Pilots School (ETPS) in Boscombe Down, England, in December 1992.

### Experience

After completion of military jet training at Sheppard Air Force Base in Texas, USA, Thomas Reiter flew the Alpha-Jet in a fighter-bomber squadron based in Oldenburg, Germany. He was involved in the development of computerized mission planning systems and became a flight-operations officer and deputy squadron commander. After completing the test-pilot training Class 2 at the German Flight Test Centre in Manching during 1990, Reiter was involved in

several flight test projects and conversion training on the Tornado the following year. Reiter attended the Class 1 test pilot training at ETPS, Boscombe Down, England in 1992. His flight experience includes more than 2300 hours in military combat jet aircraft of more than 15 types.



ESA astronaut Thomas Reiter during preparations for Extravehicular Mobility Unit training in May 2003 at NASA's Sonny Carter Training Facility Neutral Buoyance Laboratory. (Credit: NASA)

Thomas Reiter was also involved in European Space Agency (ESA) studies of a manned space vehicle (Hermes) and development of scientific equipment for the Columbus module, one of Europe's main contributions to the International Space Station.

In 1992, he was selected to join ESA's Astronaut Corps, based at the European Astronaut Centre (EAC) in Cologne, Germany. After completing basic training, Reiter was selected for the Euromir 95 mission and started training at TsPK (Cosmonauts Training Centre) in Star City near Moscow in August 1993, preparing for onboard-engineer tasks, extra-vehicular activities and operations of the Soyuz transportation system.

## The Crew

The Euromir 95 experiment training was organised and mainly carried out at EAC.

In March 1995, he was assigned as on-board engineer for the Euromir 95 mission, a record-breaking 179 days mission (3 September 1995 until 29 February 1996) with two spacewalks (EVAs).



ESA astronaut Thomas Reiter during his second EVA as part of the Euromir 95 mission. During the EVA in February 1996, Reiter retrieved elements of the European Space Exposure Facility (ESEF). (Credit: ESA)

Between October 1996 and July 1997, Reiter underwent training on Soyuz-TM spacecraft operations for undocking, atmospheric re-entry and landing. He was awarded the Russian 'Soyuz Return Commander' certificate, which qualifies him to command a three-person Soyuz capsule during its return from space.

Furthermore, he performed collateral duties in the ERA-team of ESA, which developed the European Robotic Arm and its ground based test- and mission control equipment.

From September 1997 to March 1999, Reiter was detached to the German Air Force as Operational Group Commander of a Tornado fighter bomber wing. After his return to ESA he gave support to the ATV team and the ERA programme.

On 1 April 1999 he resumed his activities at the European Astronaut Centre in Cologne, Germany. He continued training at the Russian Cosmonaut Training Centre in Star City from June 1999 until March 2000 for the Russian Segment of the International Space Station.

Within the Directorate of Human Spaceflight, Microgravity and Exploration Programmes, and prior to his current mission, he was working the last three years in the Columbus programme.

### Spaceflight experience

ESA-Russian Euromir 95 mission to the Mir Space Station, along with Russian colleagues Yuri Gidzenko and Serguei Avdeev. Reiter was assigned as on-board engineer for the record-breaking 179 days mission (3 September 1995 until 29 February 1996). He performed some 40 European scientific experiments and participated in the maintenance of the Mir space station. He performed two spacewalks (EVAs) to install and later retrieve cassettes of the European Space Exposure Facility experiments (ESEF).

### Current assignment

Since April 2001 he was assigned to the first ISS advanced training class to prepare for one of the first European long-term flights on-board the ISS.

In September 2004, Thomas Reiter was assigned to a long duration mission to the International Space Station and was launched aboard Space Shuttle mission STS-121 on 4 July 2006.

During his mission Reiter is the ISS Flight Engineer 2 as a member of ISS Expeditions 13 and 14. In addition to his ISS Expedition tasks he is carrying out a full experiment programme for the European Space Agency and is involved in a number of NASA experiments.