## **EXPEDITION 21 ASSEMBLING SCIENCE**

The International Space Station's Expedition 21 crew will continue setting up the orbiting outpost as a multidisciplinary laboratory, activating recently delivered research facilities, integrating new supply lines and enhancing living conditions.

The comings and goings of Space Shuttle and Soyuz crews are indicative of the fast-paced traffic pattern that will continue as the Space Station transitions from construction site to research center.

The transition to Expedition 21 began with the Sept. 30, 2009 launch of the Russian Soyuz TMA-16 spacecraft from the Baikonur Cosmodrome in Kazakhstan. Aboard was NASA Astronaut Jeff Williams, Russian Cosmonaut Max Suraev and Guy Laliberté, a spaceflight participant from Canada flying under an agreement between the Russian Federal Space Agency and Space Adventures, Ltd. Laliberté is the founder and chief executive officer of the entertainment troupe Cirque de Soleil.

Williams and Suraev joined Belgian Astronaut Frank De Winne, U.S. Astronaut Nicole Stott, Canadian Robert Thirsk and Russian flight engineer Roman Romanenko to complete the Expedition 21 crew.

After a nine-day transition and the Oct. 11 departure of Russian cosmonaut Gennady Padalka, NASA Astronaut Mike Barratt and Laliberté, De Winne took over as ISS Commander, the first European Space Agency astronaut to do so.

The Expedition 21 and 22 crews will set up and activate new research facilities, such as the Materials Science Research and



The ISS is seen following installation of the Japanese Experiment Module's Exposed Facility, and the Experiment Logistics Module was added to the Kibo laboratory on Station.

Fluids Integrated experiment racks that were delivered to the station by the STS-128 mission. They will also un-berth the Japanese H-II Transfer Vehicle when its supply mission is complete; welcome two Shuttle crews, a new Russian docking module and a Progress resupply spacecraft.

The Shuttle Atlantis launched from Kennedy Space Center Nov. 16 and docked with the Station two days later. The STS-129 Utilization and Logistics Flight-3 crew delivered two Express Logistics Carriers. additional equipment and supplies and conduct three spacewalks. The spacewalkers installed two new materials exposure experiments and a new high-pressure gas tank and positioned additional external spare parts. Discovery spent seven days at the ISS before undocking, bringing Stott home after more than 100 days on orbit.

De Winne, Thirsk and Romanenko plan to depart the ISS Dec. 1 in their Soyuz spacecraft, after 187 days in orbit. At that time Williams will assume command of the Expedition 22 crew.





Frank De Winne

## Frank De Winne Commander

Born: April 25, 1961 in Ghent, Belgium. Education: Graduated from the Royal School of Cadets, Lier, in 1979. Received

masters degree in telecommunications and Civil Engineering from the Royal Military Academy. Brussels. 1984.

Experience: In January 2000, Frank De Winne joined the European Astronaut Corps. He participated in the 11-day Soyuz TMA-1 mission to the ISS. He served as a flight engineer for Expedition 20.

Jeffrey Williams (Colonel, US Army, Ret.) Flight Engineer



Jeffrey Williams

Born: January 18, 1958 in Superior, Wisconsin, but considers Winter, Wisconsin to be his hometown. Education: Earned a bachelors degree in Applied Science and Engineering from the U.S. Military Academy in 1980, a masters in Aeronautical Engineering and the degree of Aeronautical Engineer from the U.S. Naval Postgraduate School, both in 1987, and a masters in National Security and Strategic studies from the U.S. Naval War College in

Experience: Selected as an astronaut in May 1996, Williams was a mission specialist on STS-101 in 2000 and worked on the Space Station for six months in 2006 as a member of the Expedition 13 crew.



**Maxim Suraev** 

Maxim Suraev (Major, Russian Air Force) Flight Engineer

Born: Born May 24, 1972, in Chelyabinsk, Russia Education: Suraev graduated with honors from the Kachin Air Force Pilot School as pilot-fighter In 1994. That same year, he entered the Zhukovski Air Force Academy from which he graduated with honors in 1998 as pilot-engineerresearcher.

Experience: Selected as a cosmonaut in December 1997, Suraev will serve as a flight engineer for Expeditions 21 and 22, his first trip into space.



Robert Thirsk. Nicole Stott and Frank De Winne participate in a training session in the Simulation and Training Facility at NASA's Johnson Space Center.

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