

Hi this is Steve Nerlich from Cheap Astronomy [www.cheapastro.com](http://www.cheapastro.com) and this is *Chicks in Space*.

It was just another day at the office on the 25<sup>th</sup> of October 2007, when Colonel Pamela Melroy, commander of the STS 120 Space Shuttle mission docked with the International Space Station to be greeted by Peggy Whitson, the Station's first female Commander. Melroy was on her third shuttle mission and Whitson was doing her second stint on the ISS, clocking up over 377 days in cumulative missions, the longest time that *any* US astronaut had been in space.

It all started back in 1962 when the Russians decided that the first woman in space would need to be an experienced sky diver. Valentina Tereshkova, a Russian textile factory worker, who spent her spare time jumping out of planes, was selected as one of five astronaut recruits from a field of 400 applicants.

After passing a series of intensive tests, Tereshkova was commissioned a junior Lieutenant of the Soviet Airforce. On the 16<sup>th</sup> of June 1963, she launched in Vostok 6 and completed 48 orbits of the Earth. After 3 days in space, she made a polite correction to her orders, which would have required her to ascend, rather than descend, her altitude – and re-entered the atmosphere.

Around this time, America's Mercury astronauts, who were, by the way, all guys, would re-enter the atmosphere strapped into couches, twiddling their thumbs until splash-down – when they were picked up by a helicopter. Tereshkova, like any good Vostok astronaut, watched her altimeter until it reached 7 km then she blew the hatch and activated the ejection seat. This shot her out the hatch and she plummeted in free fall for nearly 3 km before opening her parachute. Tereshkova landed safely – slightly bruised, but, for all time, the very first chick in space. And if you are wondering, the Vostok capsule came down separately by its own parachute.

But that was it for another 19 years, indicating the Russians were not immune to a bit of glass ceiling mentality either. The Gemini, Voshkod, Apollo and Soyuz programs followed with a unerring sequence of guys, until in 1982 – with rumours that the Americans were about to launch a female crew member, the Russians recaptured a bit of space race fever and launched Svetlana Savitskaya on the Soyuz T-7 on the 19<sup>th</sup> of August 1982.

No sloucher, Savitskaya had logged 450 parachute jumps before the age of 17 and a world record jump before turning 18. At the age of 21 she graduated from the Moscow Aviation Unit and set about establishing world records in a range of supersonic and turbo-prop aircraft. Savitskaya later flew the Soyuz T-12 mission on the 17<sup>th</sup> of July 1984 and became the first woman to undertake a spacewalk for 3 hours and 35 minutes outside the Russian space station Salyut 7.

That American female crew member, that the Russians were so keen to get ahead of, was Dr Sally Ride, who with a PhD in physics from Stanford joined NASA in 1978, worked as Cap-Com for the 2<sup>nd</sup> and 3<sup>rd</sup> ever space shuttle missions in 1981 and 1982 and on the 18<sup>th</sup> of June 1983, she became the first American woman in space, as a crew member on the STS-7 mission aboard the Challenger orbiter. She flew again on the STS 41-G mission, also involving the

Challenger orbiter. She was training for her third mission when the Challenger orbiter was destroyed 73 seconds after launch on the 28<sup>th</sup> of January 1986.

Dr Ride wasn't aboard, but two other women were. There is a rule about needing to reach an altitude of 100km or 80 miles to be considered an astronaut. Hence Christa McAuliffe, who died alongside already-experienced astronaut Judy Resnik, never made the required altitude – but what the heck, she gets into this podcast anyway.

Dr Ride was closely involved in the Challenger disaster inquiry and made the key point that a backup system to a critical component (such as the solid booster rocket O rings) was a redundancy put in place in case of an unforeseen failure. Depending on such a back up system in a situation of known risk (where it was suspected the O rings had frozen solid in the low overnight temperatures preceding the launch) should never have been considered.

It was over two and a half years before a new shuttle mission STS 26 launched on the 28<sup>th</sup> of September 1988. Surprisingly, in the context of NASA's often puzzling mission numbering, it was actually the 26<sup>th</sup> ever shuttle mission, although it followed the Challenger disaster, which was called STS 51-L.

Apart from the numbering system, things went smoothly for many years, and on the 4<sup>th</sup> of December 1998, the 93<sup>rd</sup> shuttle mission STS 88 with a Dr Nancy Currie aboard, visited the newly-born International Space Station, delivering the Unity module.

However, the construction of the ISS was suspended when the 113<sup>th</sup> shuttle mission STS 107, was destroyed on re-entry on the 1st of February 2003. The crew included Dr Kalpana Chawla who went twice into space and Dr Laurel Clark who went just that once.

Another chick in space, who was also no sloucher, was Colonel Eileen Collins. Collins was the first ever female shuttle orbiter pilot and became the first ever female commander of a shuttle mission on STS 93 in July 1999. Hence it was not surprising that Collins was chosen to be the commander of the 'return to flight' mission STS 114 which launched on the 26<sup>th</sup> of August 2005, two and a half years after the Columbia disaster.

At the time of recording this podcast, the Discovery orbiter is poised to launch on the mission STS 119, which is in fact the 125<sup>th</sup> Shuttle mission – and there are less than 10 more missions expected before the entire shuttle fleet is retired in 2010. All going well, that means the space shuttle program will end with two failures out of around 133 missions.

The statistics that matter here are that at the time of recording, just prior to the launch of STS 119, 47 out of 488 Wikipedia-listed astronauts were women. Unfortunately STS 119 isn't going to change that first number because they're all guys.

The next shuttle mission STS 125 is scheduled for May 2009 with the Atlantis orbiter set to do the final service on the Hubble telescope and the crew includes rookie Katherine McArthur who will lift the space chick figure to 48.

The Soyuz missions are also a bit short on women, with no-one listed prior to Shannon Walker, scheduled to fly to the ISS in late 2010. Apart from Tereshkova and Savitskaya, Elena Kondokova is the only listed female cosmonaut and she last flew in 1997.

And so it seems we will end the first decade of the 21<sup>st</sup> century with less than 10% of Earth's astronauts being chicks. Just repeating, the 21<sup>st</sup> century, I mean – come on.

Many thanks for listening. This is Steve Nerlich from Cheap Astronomy, [www.cheapastro.com](http://www.cheapastro.com). Cheap Astronomy offers an educational website where your financial position is always looking up. No ads, no profit, just good science. Bye.