

Hi this is Steve Nerlich from Cheap Astronomy [www.cheapastro.com](http://www.cheapastro.com) and this is Nancy Atkinson from Universe Today <http://www.universetoday.com> and this is *My Favorite Space Shuttle Missions*.

Nancy: Since the space shuttle program is winding down, Steve and I thought we'd share just a few memorable missions - memorable in our eyes, anyway.

Steve: Well Nancy, if you don't mind me going first, one of my favorite shuttle missions was STS 41-G. This was the 13th ever space shuttle mission and the sixth flight of Challenger. It launched on the 5th of October 1984.

Aboard were 7 crew - with 2 women, including the awesome Sally Ride. Paul Scully-Power was also aboard, the first Australian-born astronaut – although he'd become a US citizen two years earlier - whereas Marc Garneau was not only the first Canadian-born astronaut aboard, but he was still Canadian citizen – probably because the Canadian government actively supported the international space program. Mind you Paul Scully-Power was the first astronaut in space with a full beard, so he gets points there.

STS 41-G was the mission where the second ever shuttle IMAX movie was shot - which was the one most people tend to remember - *The Dream is Alive*. The movie captures some of the optimism and sheer exuberance of spaceflight before things went a bit grim and serious after the 25th ever space shuttle mission - which was the Challenger disaster.

Wake up songs on STS 41-G included *Flashdance* and the theme from *Rocky*. Well, it was the 80s.

Nancy: One of my favorite shuttle missions was STS-61, the first Hubble repair mission, which launched in December of 1993. This was the mission that many people say saved NASA and the space program, and it really showed how humans and robotic spacecraft can work together to do great things. After years of development, Hubble launched on another space shuttle mission back in April of 1990. But it didn't take long for astronomers to find out that Hubble had a problem – a spherical aberration problem where its main mirror was ground incorrectly. This meant the telescope could not focus correctly and instead of being able to image an object to a single sharp point, it instead saw a fuzzy halo around everything. So, astronomers decided Hubble needed eyeglasses. And luckily, Hubble is the only telescope ever designed to be serviced in space by astronauts, and so the astronomers and engineers designed these eyeglasses – called the COSTAR, or the Corrective Optics Space Telescope Axial Replacement which the STS-61 crew installed.

The crew included a group of incredible astronauts, many of whom I would consider iconic: Jeffrey Hoffman, Story Musgrave, Dick Covey, Ken Bowersox, Kathryn Thornton, Swiss astronaut Claude Nicollier and Tom Akers.

The mission lasted 11 days, and crew members conducted five EVAs, which was a record at that time. The crew also replaced gyroscopes and solar arrays, installed a new Wide Field Planetary Camera, and fixed some other instruments and electronics. It was a gruelling and tense mission, and of course, no one really knew if the fixes were successful until a few weeks later when the first images following the repair mission were beamed down to Earth.

From then on, as you know spectacular images and amazing discoveries ensued. This successful mission not only improved Hubble's vision, but it also validated the effectiveness of on-orbit servicing. Plus it was just plain exciting and nail biting – can't ask for much more than that in a space mission.

Steve: OK, thanks Nancy, my next favorite shuttle mission is STS 47, the 50th ever mission and the 2nd flight of Endeavour which launched on the 12<sup>th</sup> September 1992. It had 7 crew – including two women, one of whom was the first ever African American woman in space, Mae Jemison – who, perhaps even more importantly, had a role in a *Star Trek - The Next Generation* episode called *Second Chances* – which was one of those transporter accident creates a duplicate twin plot, involving Riker this time... Oh sorry – the mission.

STS-47 also had the first Japanese astronaut aboard (probably because the Japanese government actively supported the space program). It also had the first married couple aboard Jan Lee and Mark David. STS-47 was a full on life-sciences mission, carrying aboard Japanese koi fish, frogs, fruit flies and fungi.

And would you believe no wake up calls. For three successive flights in 1992 - STS 50, 46 and 47 (and yes, in that order) - the crew worked in two shifts and worked around the clock.

Nancy: My next favorite shuttle mission is STS-100, in April of 2001. Now this is not just one of my favorites just because I like nice round numbers. I like this mission because it had one of the most international of crews heading up to the International Space Station. There was Chris Hadfield from Canada (one of my all time favorite astronauts, anyway!), Umberto Guidoni from Italy, Yury Lonchakov from Russia, as well as Scott Parazynski, Kent Rominger, John Phillips, and Jeff Ashby from the US.

And on that international-like note, since Steve as mentioned wake up songs, one of the wake-up songs on this mission was, fittingly, What a Wonderful World by Louis Armstrong.

This was one of your basic construction missions to the ISS. The crew, flying on spae shuttle Endeavour, installed the big, brand spanking new Canadarm2 , the robotic arm on the station which would be needed to really begin adding more and more modules, truss sections and solar arrays to the station. STS-100 also brought up the Raffaello multipurpose logistics module to bring loads of cargo up the station, which was in its infancy at that time – expedition 2 had just come on board the month before, so this mission brought up supplies, water and the first big experiment racks to the ISS.

And if you've seen the IMAX movie Space Station, the STS-100 crew can be seen in the movie, and they also perform a fly-around survey of the ISS, while the IMAX camera was recording, so they provided much of the external views in the movie as well. If you haven't seen the movie, here's your nudge to do so - it's great.

Steve: And my next favorite shuttle mission is STS-114. This was the return to flight mission nearly 2.5 years after the Columbia disaster. Surprising STS-114 was actually the 114<sup>th</sup> ever shuttle mission which launched on the 26<sup>th</sup> of July 2005. There were seven crew – with two women, including the awesome Eileen Collins as mission commander.

Another Australian born astronaut Andy Thomas was also aboard. He was also awesome, with four shuttle missions and time on the Mir space station under his belt– but also a US citizen throughout his astronaut career (probably because the US actively supported the international space program).

STS-114 ended up being a bit of a nail biter mission when an unexpected repair of the orbiter's heat shield was required after a chunk of gap filler was noticed to be protruding from it. Coincidentally, a bird has also collided with the external tank early in the launch and subsequently a big chunk of foam had broken off the external tank – although none of these incidents, the bird, the foam or the protruding gap filler appeared to be related. The orbiter's heat shield was repaired successfully and the orbiter landed without incident at the end of the mission. Wake up songs for STS-114 included *Come on Eileen*, by Dexy's Midnight Runners - for Eileen Collins. Awesome.

Nancy: The last mission in my list of favorites is an easy one: STS-130. Why is it my favorite? Because I was there at Kennedy Space Center to witness the launch on February 8, 2010, followed the mission and press conferences right at KSC, got to interview the crew live from space, and saw shuttle Endeavour land back on the Space Shuttle Landing Facility in Florida on February 21. Yeah, I'm pretty attached to this mission.

Speaking of attached – the STS-130 crew brought up two fairly substantial modules and attached them to the space station: the Tranquility module – a node where more modules can be attached or visiting spacecraft can dock to, and also the Cupola, a robotic control station with seven windows that provide a 360-degree view around the station and of Earth. The cupola has become a favorite place for astronauts to take pictures of Earth, and to take pictures of themselves taking pictures of Earth too.

The crew for this mission included George Zamka Terry Virts Kathy Hire Steve Robinson Nick Patrick and Bob Behnken.

STS-130 launched at night, and it was truly one of the most spectacular sights I have ever witnessed – it just lit up the night sky and it thundered off the pad, and the sound waves just engulfed me. Its something that left me speechless – which doesn't happen very often.

Being there at Kennedy Space Center for the entire mission was just an amazing experience, one that I will always hold close to my heart.

Thanks for listening. This is Steve Nerlich from Cheap Astronomy, [www.cheapastro.com](http://www.cheapastro.com). Cheap Astronomy offers an educational website where planet Earth is blue and sometimes we know what to do. No ads, no profit, just good science – and Nancy Atkinson. Bye.