

"Earth is but a spaceship"

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On 7 February 2008, the Space Shuttle Atlantis took off from Kennedy Space Center, en route to the International Space Station (ISS). Also on board was the European Columbus laboratory. Mission specialist Hans Schlegel was on the flight. In this interview, the astronaut talks about pre-launch rituals, the spacewalk he performed and the first work in Columbus.

Interviewer: Manuela Braun.

The Space Shuttle Atlantis was actually scheduled to take off on 6 December 2007, but problematic sensors put an end to that expectation. There were several subsequent launch dates, but the Space Shuttle actually took off with the Columbus research module on board on 7 February 2008. There was only a 30 percent probability of launch due to unfavourable weather. As an astronaut, what is it like to be on permanent standby at times like this?

We had trained for the Columbus mission for over two years. And yes, we were working towards a launch date, all the training was leading up to that – your personal life is organised for everything to work out that way. We travel to Florida, stay in quarantine, carry out the various tests and finally take off. Objectively, for the crew it's almost irrelevant whether it happens three days earlier or later. But for everybody on the project who is not so closely involved, and for the guests, it's really a difficult outcome. For us it's more a question of why it's being moved. In our case there was a technical uncertainty, something unexpected, actually. It made us think about what could be wrong with the sensors. All sorts of discussions were taking place in the background, but for us it was very much an issue of safety. So, it was quite tense.

As an astronaut, do you have any say when it comes to making the decision of whether to launch or not?

The commander has a say, of course. He will have spoken to every member of the crew, and we will have given our thoughts on it. The commander then passes on the view of the crew. Ours was that we wanted all the sensors to be working properly. The management team had come to the same conclusion separately. So it was decided that the sensors would be repaired and that the launch would take place at Christmas at the earliest. The launch took place in February – and with sensors working perfectly. A postponement is disappointing for the crew, but not nearly as disappointing as it would seem from the outside.

A series of rituals are supposed to take place before the astronauts climb into the shuttle. For example, playing cards until the commander loses a hand?

Yes, that's become a tradition. The idea is to relax the mood of the crew. We play a type of poker. It only takes five minutes or so for the commander to get the worst cards and lose a hand. Then we can be sure that the commander has had the bad luck for that day.

So in spite of all the technology and the planning, a ritual is still important?

Exactly. Of course, none of us believes that we are influencing fate or any of the technical circumstances by doing this, but it's important for relaxing the mood and for the objectivity you need to be able to concentrate fully during the demanding technical procedures and make the right decisions. It quickly makes sure that you are relaxed enough, but also focused enough not to take anything lightly. I think it's a skill to get all of the crew in such a mood. But there are plenty of experienced astronauts. In our crew, Jerry Ross was responsible for the pre-launch

procedure in the crew quarters. He has flown on seven shuttle missions and was one of my crewmates on the D2 mission.

The D2 mission was launched in 1993. So you were an experienced astronaut too. Were you more relaxed or more excited on the launch pad prior to your second mission, 15 years later?

It's different, but I can't really say whether you are more or less excited. I was very, very tense both times. And curious: what would it be like to experience weightlessness again 15 years after my first mission? Would my body still remember? Would I still benefit from that physical experience? But on launch day itself, you are thinking that the two million litres of fuel will burn off in a controlled manner and that you will make it to space without incident.

What was your daily routine like once the Shuttle had docked with the Space Station? What exactly were your tasks on board?

There were 10 of us in total – seven who had arrived on the Shuttle and three ISS crew members. The first item on my agenda was the EVA, the spacewalk. Then came the work on Columbus, commissioning the on board equipment. It's a dream to be the first person to work on such a laboratory. One was as exciting as the other, but of course I won't deny that, for me, the absolute highlight was the spacewalk. Foolishly, I missed out on my first EVA – ground control decided that my physiological parameters weren't right and didn't want to deploy me. But it worked out OK and I was allowed to perform the EVA two days later.

For ordinary people, the idea of visiting a space station like the ISS is unimaginable. How do you feel when you step outside of even this safety zone?

You climb from a large spaceship into a smaller one – the spacesuit. It has everything you need – its own energy supply, its own life support system providing clean air, regulating the pressure, controlling the temperature, so you can work properly in outside temperatures varying from minus 100 to plus 100 degrees Celsius. You have to monitor it, because ultimately you are the one who will immediately feel the direct effects. It was my task to replace a high-pressure nitrogen tank, disconnect the hydraulic lines and reconnect them again. You had no idea how it would all work out. You were ready for any surprises and worked with a great deal of concentration.

When you are undertaking work like this, how much time do you have to really be aware of where you are – outside a flying 'container' in space?

You are very aware of exactly where you are. The view of Earth is incomparable – even from inside the Space Station. You have a 170-degree view with the helmet on. And you can float away from the structure to exposed places. You would be foolish not to take a couple of seconds to have a look. My colleague Alan Poindexter, who was responsible for coordinating the EVA from the ISS, said to me at one point: "Hans, we're passing over Germany now, take a few moments to look down." By coincidence, we were flying right over Cologne and Aachen. I could see Cologne, the Cologne Basin and the Rhine. Even so, we were flying at seven kilometres per second, so it took 10 seconds to get from Aachen to Cologne. Those were very special moments.

A trip to space has known physical effects, but does floating at approximately 400 kilometres above Earth and outside the Space Station also affect you psychologically?

I'm very level headed about that. Spaceflight itself doesn't change you. And it doesn't change the psyche of the level-headed people selected to be astronauts. But what does change your life, of course, is conversations like this, and giving talks to other people, or when children ask you what it was like. Then you start to talk about the fantastic thoughts you had when in weightlessness, where there is no up and no down. And you talk about what the world looks like from the outside and you realise that Earth is nothing but a spaceship with seven billion astronauts on board. And Earth really is a large spaceship, but a finite one. The numerous questions make you think and talk about things you never would otherwise. So ultimately a mission like this does change you a great deal.

You returned from your mission on 20 February. Does the Columbus research module hold a special significance for you because you were part of the team that installed it?

I spend part of my working time following what is happening on Columbus, which experiments are being carried out and where problems are occurring. We shouldn't make the mistake of

thinking that there is a space station up there that is as safe as a house. Every now and then, technical systems develop problems that need resolving. We learn a great deal by carrying out the experiments. It's extremely exciting – and that's what I'm following.

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ESA astronaut Hans Schlegel in front of the Space Shuttle window



After undocking from the ISS, the astronauts in the Space Shuttle Atlantis look back through the shuttle window. German ESA astronaut Hans Schlegel, who, along with his colleagues on the STS-122 mission, installed the Columbus space laboratory on the ISS and commissioned it, looks back at the work they have done.

Credit: NASA.

ESA astronauts Léopold Eyharts (left) and Hans Schlegel (right) in front of the Columbus laboratory



ESA astronauts Léopold Eyharts (left) and Hans Schlegel (right) in front of the Columbus laboratory in the NASA integration hall known as the Space Station Processing Facility (SSPF) at the Kennedy Space Center. Columbus is being prepared for the launch of mission STS-122.

Credit: ESA.

German ESA astronaut Hans Schlegel during the extra-vehicular activity



German ESA astronaut Hans Schlegel climbed out of the International Space Station (ISS) on 13 February 2008. The main objective of his extra-vehicular activity with NASA astronaut Rex Walheim was to replace a refrigerator-sized nitrogen tank that is part of the ISS cooling system. The spacewalk lasted from 15:27 CET to 22:12 – 6 hours and 45 minutes.

Credit: ESA/NASA.

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