Ulf Merbold - European Space Pioneer

More than 30 years ago Ulf Merbold flew into space as the first West German. That was in 1983, at the maiden flight of the European space laboratory "Spacelab" called the “First Spacelab Payload” (FSLP, SL-E1) mission. And he was the first foreigner on board a US spaceship ever. "Relieved and happy," he was then to have been chosen from more than 2,000 applicants, says Merbold who on June 20, 2016 celebrated his 75 birthday.

There were more “firsts” in his career:

- 1992 first European participating in an international spacelab mission (IML, STS-42
- 1994 first European with the experience of having flown on US (SL-E1, STS-42) and Russian space vehicles (Soyuz TM-20, TM-19 for landing) and worked in the Spacelab and the Russian MIR space station.
- 1995 first Astronaut to be appointed as Chief of the ESA Astronaut Training Center (EAC)

Fig.1 Strauss and Merbold at the POCC during the D-1 Mission (November 1983)

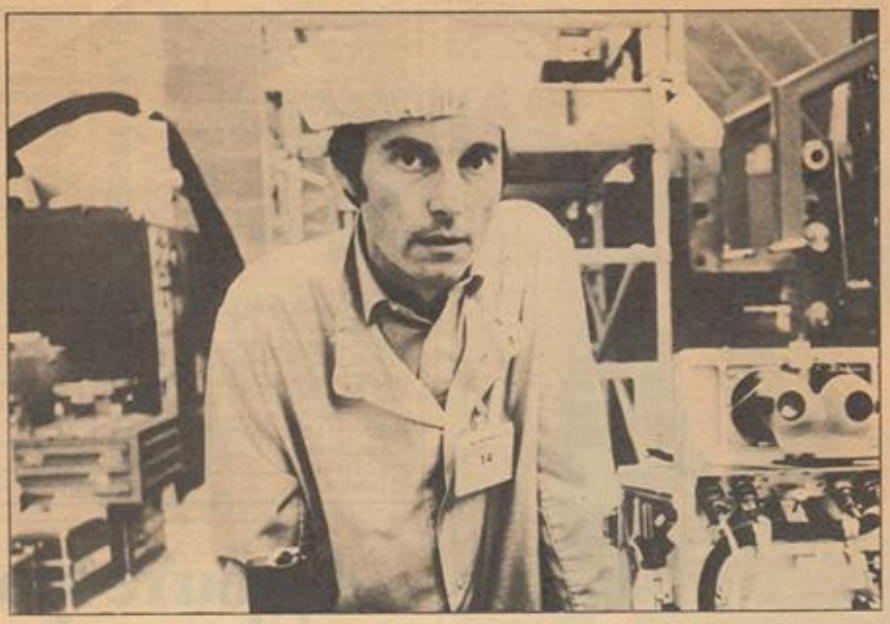
Ulf Merbold was instrumental for DLR’s German Space Operations Center (GSOC) in Oberpfaffenhofen to finally achieve the status of the ESA’s Columbus Control Center (Col-CC). During the D-1 mission in 1985 Ulf Merbold acted as Payload Operations Coordinator at the Payload Operation Control Centre (POCC) at GSOC, this was the first time NASA accepted payload operations to be conducted from outside (remotely) a NASA center. During the mission and as aerospace “aficionado”, the Bavarian minister president Franz Josef Strauss visited the control center and followed the mission closely directly from a control room console together with Ulf Merbold. He was so impressed after talking to Ulf and the Astronauts onboard that he promised on the spot to inspire his Minister of Economics to grant an investment of approximately DM 20Mio to put DLR in the role of an European human spaceflight center – like the NASA center at Houston/Texas.
The investment program was subsequently announced on November 5th 1985.
The construction of the “Manned Spacelaboratories Control Center” (MSCC) was started on April 4th 1989 and finally became the ESA Columbus Control Center (Col-CC) for human spaceflight operations of the International Space Station (ISS).

As homage to Ulf Merbold the “historical” article by Linda Hawkins TVTIMES MAGAZINE (Nov 28th -8th Dec 1981) is reprinted – it recreates the enthusiasm and expectations connected with Ulf’s first flight: “EUROPAN SPACEMAN – forget Flash Gordon, forget Dan Dare it’s Ulf Merbold”

Monday: Astronauts

Forget Flash Gordon, forget Dan Dare now it's Ulf Merbold...

European spaceman



Monday's *Astronauts* takes another imaginative leap into space-age comedy. In reality, the European Space Agency has already begun the countdown to launch its first scientist in space.

by Linda Hawkins

He leans against the viewing platform, a slight, sharp-featured man in an outsize white coat, floppy Aertex overshoes and a large hairnet planted firmly on his head. Forget Flash Gordon, forget Dan Dare, forget the comic heroes in their paper rockets. This unlikely figure is the genuine article. This is Ulf Merbold, scientist and spaceman of the Eighties.

Beefcake and goldfish-bowl helmets have gone for good. Intelligence, stability and efficient circulation are the things that count today. We don't even call them spacemen any more. Merbold, who may become Europe's first scientific astronaut, is known as a 'payload specialist'.

He wears his hairnet gravely. Slender and serious, with sensitive hands and an intense brown gaze, Merbold could be an artist. In fact, like his two payload specialist colleagues, Claude Nicollier and Wubbo Ockels, he is a scientist.

Beneath him in a vast, echoing hall, small figures in identical coats and hairnets are scurrying to and fro doing incomprehensible things to huge chunks of machinery. It looks like a giant biscuit factory, but here, on the edge of an airfield in Bremen, West Germany, Europe's most exciting space project, Spacelab, is being carefully and meticulously assembled.

Not everybody realises that Europe has a space programme. Yet since the early Seventies, European countries, Britain included, have been building a laboratory to send into space in 1983 on board the American space shuttle. Miles above the earth, experiments will be conducted to benefit medicine, industry, meteorology and science. Vital to the project are the payload specialists who will conduct experiments in space.

'We advertised throughout Europe for candidates,' says Frau Weissener, the project's public relations officer in Bremen. 'And we had more than 5000 applications, some of them from Britain. The youngest was a boy of nine and the oldest, a man in his 70s. There

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'Chicken legs in outer space'

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were women and students. So many people wanted the chance to fly in space.'

They had specifically asked, however, for scientists in good health who were not older than 35, not taller than 1m 80 (5ft 11in) nor shorter than 1m 70 (5ft 7in).

'We were looking for three highly intelligent scientists with balanced personalities,' says Frau Weissener. 'We didn't want leaders, or men who were introverted. They had to be co-operative people, capable of working together as a team in confined spaces.'

Among the thousands of applicants was a German physicist named Ulf Merbold.

'It was about three and a half years ago when I saw the advertisement,' says Merbold. 'I thought it would be interesting to apply to see how the tests work. I didn't seriously think I'd be one of the three selected, knowing how many applicants there were, but I thought it would be fun to take part.'

He was invited to take a series of psychological tests and an exhaustive medical examination.

'Physically, you had to be average or above average,' says Merbold. 'It wasn't possible to make up for poor eyesight with excellent hearing, for example. In the same way, they were looking for people with a good general scientific knowledge rather than specialists in any particular field.'

Merbold appeared before two scientific panels, where he obviously demonstrated his competence and versatility because he was selected to move on to the next stage – the special tests. These involved such ingenious pieces of equipment as the lower body negative pressure box, the centrifuge and the rotating chair, which sound, and some might say operate, like medieval instruments of torture. Merbold, with a scientist's detachment, denies they were in any way unpleasant experiences.

'The lower body negative pressure box sucks the blood from the upper part of your body into the lower extremities,' he says, as if he were explaining a particularly interesting type of food mixer. 'This simulates what happens when you come back from space into the earth's gravitational field, and the test is designed to see if your heart can cope with the strain.

'The centrifuge has a similar aim. You sit there for about 10 minutes while the centrifuge spins to generate a force of 3Gs [three times the force of gravity]. You are pinned to the seat and your body becomes three times heavier than normal. You can feel the weight of your hands, your arms, even your face. The blood is pushed into your legs. That reduces the volume of blood in the brain, and as a result your heart has to speed up to supply your brain with the oxygen it needs.'

Merbold, now a boyish 41, came through these horrors unscathed. He also survived the treadmill and a great deal of spinning on the rotating chair to test his sense of balance. He found these experiences 'interesting'. More to his taste, rousing him in fact to genuine enthusiasm, was the fun of flying roller coasters in the military version of a Boeing 747 to simulate zero G, or weightlessness.

'Some people don't like it, but I thought it was just fantastic,' says Merbold, his face becoming animated for the first time. 'The plane flies horizontally to build up speed, then the crew pulls the nose up and you have increased G load. Then they do the "push over" and like that [he snapped his fingers] you have zero G. One minute you're standing in the plane, much heavier than normal, and then suddenly the floor disappears from under your feet and you're floating free.

'It's just spectacular. Normal standards like up and down don't mean anything any more. You can bring your body into any position you want. I thought it was fantastic but, unfortunately some people run into motion sickness problems.'

Space sickness is quite common and afflicts some astronauts in the way that sea sickness can affect sailors. It is one of the problems it is hoped will be solved during the 1983 mission. The scientists will also investigate the mysterious condition the American astronauts nicknamed 'chicken legs'.

'In the first few hours after take-off the body suffers a fluid shift,' says Merbold. 'For some reason, about two litres of body fluid move from the legs into the upper part of the body. The legs shrink, the neck becomes puffy and extra strain is put on the lungs. It lasts only a few hours, but at the moment we don't know why it happens.'

As the number of candidates steadily decreased, Merbold realised that he stood a good chance of selection. He began to take the tests seriously. In the beginning the selection procedure was experience enough, but now he knew he would be bitterly disappointed if he failed to win a contract as a payload specialist.

There were a great many reasons why Marbold wanted to go into space: 'It must be a fantastic experience to see the globe from 250 kilometres up, to see the cloud formations, the sunsets and the big tropical storms. It's also interesting for me as a scientist to get the chance to work in so many scientific areas. Nowadays, a scientist normally has to specialise to be effective, which is a great pity.'

But what about the danger? Doesn't the possibility of being burned to a crisp, or lost in space, worry him?

Merbold will not admit to such a weakness as fear.

'I think the risk is fairly small,' he says dismissively. 'It's probably more risky to drive a car in the rush hour, but that's a normal part of life, nobody thinks twice of it. Anyway, a human being has to take risks otherwise life would be extremely boring.'

Whether his family is able to take the same attitude is open to question. Merbold is married, with a daughter, aged six, and a son of two and a half.

'Journalists always want to know what my wife thinks about it,' he says impatiently. 'My family has had quite a long time to get used to the idea. The biggest problem at the moment is that I have to travel so much and I'm not home very often.'

You get the impression that, fond though Merbold undoubtedly is of his family, Mrs Merbold has to put up with whatever she thinks of it as best she can. Merbold is a scientist by nature as well as by profession and the chance to travel to the limit of human knowledge and beyond is irresistible to him.

In June 1978, Ulf Merbold was awarded his contract as a payload specialist. It is not a guarantee that he will actually fly: only one European specialist will make the trip, one will be in reserve and one will undertake the important back-up work on the ground. The positions won't be decided until a few months before the mission.

But it seems likely that Ulf Merbold will get his chance of space travel. There is a special German mission planned for 1984, so if he is not selected in 1983 he will almost certainly have his turn the following year.

In the meantime, Merbold gets off the ground whenever he can. Outside by the runway is the tiny plane he hires to commute between his office in Cologne, the space centre in Bremen and his home in Stuttgart. Describing the machine's capabilities his face lights up once more.

'I wish I could afford to buy it. I love flying. Flying is one of the things I love best of all.'