



Interview with Alexey Leonov, the First Man to Walk in Outer Space

On 18 March 1965, FAI celebrates the 50th anniversary of the first space-walk. Russian cosmonaut Alexey Leonov achieved this feat during the Voskhod 2 mission. He stayed out in space for 12 min 9 sec, a performance that the FAI recognised as a World Record in the [“Extravehicular duration in space”](#). Born on 30 May 1934, he still lives in Russia.

This interview was arranged with the kind help of General Vladimir Ivanov, President of the Russian Federation of Aeronautical Sports.

What made you want to become a cosmonaut?

After the successful launch of the world's first artificial satellite into orbit on October 4, 1957, Sergey Korolev's research department started designing a manned spaceship. In 1958 the Aviation and Space Medicine Institute had been assigned to work out the requirements for future space vehicle crews.

What kind of candidates were they looking for?

In Sergey P. Korolev's opinion the first cosmonaut (to pilot the spacecraft) would be a fighter pilot. This was the profession that was best suited to meet the requirements of flying a space vehicle. Given that a fighter pilot is single-handedly a navigator, flight-engineer, radio operator and gunner capable of enduring G-force of up to 10 G and more. At that time, approximately 3000 jet aircraft pilots were tested in all manner of conditions, night and day. They all had to be under 30 years of age, be no taller than 175 cm and be perfectly fit. 20 men (the so called Gagarin graduates) were successful in being selected.

What were the key qualities required of cosmonauts to be part of the Voskhod 2 missions? Are these qualities different from those required for today's cosmonauts?

When forming the crew of the “Voskhod-2” to take on the challenge of the first walk in space, particular attention was paid to the cosmonaut's psychological suitability, physical stamina, perfect engineering knowledge, space navigation skills and especially their ability to work in a spacesuit.

Nowadays all cosmonauts training for a space flight are necessarily trained for spacewalking. The only difference compared to requirements that were expected of us in our day, was the lowering of the eyesight requirement (with glasses allowed, the increased number of permitted teeth fillings, and the extension of a cosmonaut's age).

Why were you selected from the other crew members to do the first ever walk in space?

It was Sergey Korolev who recommended me at the time candidates were being selected for the first space extravehicular exit. During his oral presentation, he put forward my high level of physical fitness, excellent results in spacecraft technology, and my skills as a pilot. He even pointed out my dexterity in handling a paintbrush. The Selection Commission was of the same opinion as him. When "Voskhod-2" spacecraft was exhibited, Sergey Korolev had put me in charge of checking the feasibility of the extravehicular activity using the airlock compartment. That is how I became the cosmonaut responsible for the first walk in space.

Can you please describe the moment where, having exited the spacecraft, you first found yourself in space and the moment you had to re-enter the vehicle? How did you feel? Were you scared?

"The Earth is round!"- I said with unconcealed enthusiasm. I saw at once the Black Sea and the Crimea Peninsula, then I turned my head to the left and saw Romania, Bulgaria and on the end I saw the boot of Italy. By raising my head, I saw the Baltic Sea and the Kaliningrad bay, familiar to me from childhood. Stars were to my left, right, above and below me. The light of the sun, was very intense, and I felt its warmth on the part of my face that was not protected by a filter. The sky was black and the silence was extraordinary. Pulling along 5.5 m of rope behind me, to avoid being hindered in my movements, I easily moved away from the airlock hatch. The spacecraft had an unexpected reaction and started to slowly gravitate around the centre of mass. It wasn't normal. I might have found myself in a magnetic field, I was no longer facing the sun, but against the light. It looked like a record thrust into the black sky. It was impossible to see stars around the sun, but at a distance of 30 degrees they could be seen much more clearly and there were much more of them, than you can see from the earth. Even the stars of sixth magnitude were really visible.

After 8 minutes of free floating, I clearly felt the volume of my spacesuit has changed. My fingers tips no longer felt the glove tips my feet were floating in my boots, but the main thing was, I was unable to reach the shutter release on my camera, which was on my right hand side. During my weightlessness training flights, I could easily make use of it to take pictures. When floating to and from the vehicle, I thought about the next stage of the mission: how was I going to coil 5.5 m of rope, one handed, with these gloves?. Along the rope, every 50 cm, there was the 2.5 cm diameter ring, which I had to fix on to a hook. In 5 minutes we were going to be in the dark and there was no external lighting. I unfastened the camera case with the right hand and started to move towards the airlock holding on one handed with my feet forward, just how we had practiced during weightless training After 2 attempts I realized, that it wouldn't work. After calculating the amount of time in light and the oxygen supply left, I decided to drop the pressure inside the spacesuit to 0,27 atm, knowing all the while, that I would reach the threshold of nitrogen boiling in my blood, but I had no choice. I had firm instructions from the research department to report to mission control everything I was doing, even more so my decision to lower pressure inside the spacesuit. I broke the rules and didn't report to mission control to avoid spreading panic, and raise a whole host of questions. After all nobody could have helped me in that situation.

When the pressure dropped, I felt a sense of relief, but during the tasks I changed the method for entering the airlock. I didn't move with my feet forward as we had practiced, but with my head forward and I managed it. However getting into the airlock was more complicated. I had to turn about to be able to control locking the hatch. Performing these operations I kept constant eye on my camera to ensure it didn't exit the airlock.

50 years after this historical event, what is your most vivid memory of the whole Voskhod 2 mission?

What remain etched in my memory was the extraordinary silence, my heart beating and the difficulty I had breathing.

Have you ever met other space pioneers, such as Neil Armstrong or Buzz Aldrin ? Did you share experiences with each other? Are there similarities in your experiences?

I know the astronauts of the "Mercury", "Gemini", "Apollo", "Skylab" programs and some "Shuttle" commanders well. I have had a friendly relationship for 45 years with Thomas Stafford, Vance Brandt and Allan Bean, who is also a remarkable painter of the cosmos. In a professional but none the less friendly context, I have had the opportunity to meet Buzz Aldrin and the unforgettable Neil Armstrong.

Shortly before Neil's death, I took part with him in the Starmuz international conference on the Canary Islands. We organised a round-table discussions. In spite of all sorts of political difficulties, we always had good working relationship and it's still the case.

How and where do you see the future of aeronautics?

The International Space Station operations will carry on by extending the amount of time crews spend on board by one year. In 2 or 3 years time, Chinese astronauts will be able to join the station. The lunar landing programs are making slow progress in the USA and Russia, and intensive research is being conducted in China. I think China will be the second nation to land on the moon. We are also looking at ways at how to land on Mars, but the mission won't be able to take place earlier than in 2035, if all goes well on Earth.

What is the next big space dream according to you? What are the next challenges and ambitions in aeronautics?

We have already learnt how to produce in orbit medical preparations, which contain physical components that are impossible to produce on Earth. We have learnt to grow perfectly geometric structured crystals, Gallium Arsenide for instance, which is greatly used in the electronics industry. It is currently impossible to develop industrial production of these materials not only because of the low-power of equipment used, but also due to the lack of time required to get zero gravity. Continuous presence of 2 or 3 crews aboard the international Space Station creates vibration, which hinders the technological production process of sought after models. The station would have to be used as an accommodation module and for experiments not requiring zero gravity, such as for astronomy, astrophysics, geophysics and biomedical research. Around these hotels will gravitate, a short distance away, industrial modules automatically producing what we are already know how to produce. The crews will have to provide these "factories" with the raw materials, retrieve production and periodically carry out maintenance of installations. In any event, MARS remains on Mankind's horizon.