Preflight Interview: **Yury Usachev**

The STS-101 Crew Interviews with Yury Usachev, Mission Specialist No. 5.

Before we talk about the specifics of this mission, I'd like to ask a couple of questions about you. Can you tell us why it is that you wanted to become a cosmonaut? Do you remember?

When I was child, I would like to be pilot like a lot of people or a child would like to be. That's why I graduate through Moscow Aviation Institute, and then I tried to make, to have some medical tests to be cosmonaut or astronaut. You know, it's difficult to decide exactly what we are going to do when you are a child, and, for me, too, because we didn't have enough information about cosmonaut's work and how hard or how easy it is. I think I make final decision when I was a young engineer at Energia Company and I worked for Astronaut Office. It's very similar, and I could see the real cosmonauts and their work, their job, and then I decide to try to be cosmonaut.

As you said, when you completed your engineering degree you went to work at Energia before you were a cosmonaut; what were some of the things that you worked on in the Russian space program before you became a cosmonaut? How did those experiences and have those experiences, benefited you since you've become a cosmonaut?

I have a rich biography. I'm in the young engineering biography, and I work for EVA people; and I had some tests, EVA tests for our EVA group, and then I work maybe six or seven months for public relations group. It's very helpful for me today to feel comfortable to work with people like you. Then I work like engineer for system, like Buran, like you have shuttle, and I work for emergency escape system and like big constructions, it's engineering work. And I think it was useful for my work today.

Can you give us an example of how some of those early experiences are put to use as a cosmonaut?

For example, when I had EVA work and I work in the spacesuit in the pool, like a neutral buoyancy laboratory like this. It helped me when I had six EVA for our second mission to Mir station. It's a good example because it was familiar for me; it helped me.

As you look back on your life, from a child through university, do you recognize there are individuals in your life who were very influential in your choosing the path that you did and becoming the cosmonaut that you are today?

Maybe I forgot, but it wasn't just one person because, you know, we all live in world, or a lot of people live around us, and all of them influence our choice, our decision.

I didn't mean who was the most influential, but are there a couple that you think were very important?

I think, maybe, my mother may have more influence because she is very patient. Now I can understand. It's very useful for me to have enough patience to live six months in space.

Well, you have done that twice before, and on the second of your missions to the Mir, you and Yury Onufrienko spent five months on orbit with an American crewmate, Shannon Lucid, so you have firsthand experience of the Russian and the American space programs as they were first learning to work together. From your point of view, how has the experience of that Mir-shuttle program contributed to the current international efforts and the current International Space Station?

From my point of view, I think it couldn't be possible to have ISS program like you have today without a shuttle or Mir-shuttle program. It's a good experience, not just for Russian because we already have station, but for American people and for us together to understand each other better and try to work together and make some international decision. And I think it's good experience, Mir-shuttle program, and it absolutely couldn't be possible to have new program without our experience.

Since your return from your most recent Mir mission, you have spent the last couple of years in training as the commander of the second expedition mission to the International Space Station, but you and your two American crewmates on that crew have been working for a couple of years, but only recently were added to the space shuttle mission, STS-101, with only a couple of months to train to be prepared. What has it been like to change from training for a long mission to a short mission that's coming up very quickly?

Maybe it's more like psychological problem. It's not technical because nothing change for us. For me, of course, I have new training for shuttle training. Nothing new for Jim and Susan because they already have shuttle flight experience. And for me, I understand what I'm going to do for FGB and for shuttle. That's why it's more psychological than technical problem.

Do you think that the expertise that the three of you have developed in your training for the Expedition mission is helping you become part of the group, the crewmember group for STS-101?

Yes, I think it's main reason why we are in new crew now. We have enough experience to do what we are going to do. And we have a short time for training - just two months - it's very unusual for you, and it's very unusual for us, too, because in Russia it's not possible to train at the same time for two program, ISS program and the STS-101 program. It's very unusual, but I think our prior experience will help us to have successful mission.

As you said, it is very unusual for NASA to put a mission together in a matter of just a couple of months. Apparently, it's unusual for the Russian program as well. But do you think that, because there's a space station flying all the time and as things change all the time, missions like this will become more common?

I think so, because nobody knows what will happen next, and sometimes we will have more problem than we have now. It would be nice to have ability to do a mission in two or three months. It's good chance for us to be sure that we have enough training, and how Russian Space Agency and NASA make decision and what kind of training we have.

Let's talk about the mission more specifically. Tell us about the main goals of STS-101, and why it was decided to fly this mission with this crew at this time.

We have, two modules now in orbit - Unity and Zarya - and they are flying more than one year - the FGB for example - without a crew. It's very important, and nobody can change something inside, and it's time to change old equipment to new equipment. People at NASA and Russian Space Agency make sure that these two modules will be ready for docking with the Service Module. Maybe it's more important docking three modules together, and if you have any problem with these two modules, we won't be able to continue our program. That's why it's very important to have these two modules in good condition. It's one reason we have to prepare things for change and replace some equipment on FGB.

One of the most important things to happen to make that a reality, after you launch, is for the rendezvous of the shuttle with the station and docking to the station. Jim Halsell will be flying the space shuttle, but the rest of the crewmembers will have other tasks that will help to make that a success. Talk us through the major points of what happens on the rendezvous, and tell us about what you will be doing.

It's a new task for me, as I said, and it's a shuttle flight - I had some experience when I was with Yury Onufrienko for backup crew of STS-71 mission, but this was a short time. It was our first mission, and we didn't know enough as partners about training. And now we know more, and for shuttle mission, of course, I am rookie. I have long-duration flight experience but not for shuttle. That's why I have to learn more about shuttle. I already have some shuttle training. All crewmembers are very busy: the pilot and commander, the engineer and whole crew. For me, it's a very short task for rendezvous. For example, I work with a handheld laser for distance measurement. It's interesting because I will be near the commander. I would see the station better than the other crewmembers.

The day after the spacewalk is the day that the work is to begin inside of the International Space Station. Do you have any sense now how you would feel on the day that you first float through the hatch into this new space station?

I am looking forward to this day because it will be real work for me. It's my responsibility to work inside FGB. What we have planned now, Susan and I will make ingress. We'll open hatch into Node and to FGB. I could picture what STS-96 did. It looks familiar to me what I will see. But I think I will try to compare, like Mir station, my old experience, and now what changed inside it, and what's a better way to do my job for FGB repair.

Let me get you to tell us about that more specifically. The top-priority tasks for this mission have been described as the repair of equipment inside Zarya, particularly the work involved with the batteries, and the task that you're going to be very involved with. Can you describe for us the problem that exists with the batteries inside Zarya, and what you and your crewmates are going to do to try to overcome this problem?

Well, we had trained with Susan Helms in Star City two weeks ago, and we could see all equipment, what we are going to change. Let me explain it and describe why it's so important. It's a power system. It's very important for docking. If you have any problems, it's not possible to work on any equipment inside and outside, for two modules, FGB and Node. That's why it's high priority for us. And, really it's not new for me to change battery like this because we did it for Mir station. I don't know how many times but we did it a lot with just mechanical bolt and nuts and connectors. It's familiar. I think it's easy enough to do; … easier for us. And Susan already has enough training for that. What I think could be more of a problem, our organization, our timeline, is how, Moscow Mission Control Center and Houston will work. We have a lot of work. It has to be exact and on time when it has to be done. That's why maybe it could be one problem that I expect.

We've heard it described as a problem with batteries, but I understand that there are a number of components involved, too. Are, are you simply pulling one piece out and replacing it with another, or are there a variety of different components involved?

We'll change not just a battery, we'll change some electronics box. We know how we are going to do that and it's familiar to us. It's the same connectors, just other types of connectors and bolts and mechanical. It's no big problem I think. You see, it's in flight for more than one year, it's just once we change some equipment. The battery, it's second time we've changed it. It's not equipment problem. The problem is a module without crewmembers.

And that was really what I was trying to get at. The fact that Zarya has been on orbit and providing power and control for the station for far longer than it was intended to - it was supposed to help out until Service Module arrived, and it is not there yet. So there are other tasks involved as well to help extend the life of Zarya until the arrival of Zvezda later this year. Can you tell us about what some of those other jobs are, and what you and your crewmates will do.

Actually, for example, we will change some cables for telemetry system. It's a new possibility for system to work together with Russian and American equipment. For example, we will be able to send some commands to FGB or to Node through Russian Mission Control Center or through Houston. It's just more ability for equipment to work. One more thing that we are going to change is the tape recorder for telemetry system. It's just a box with six or nine bolts and two connectors.

We mentioned earlier that your opportunity to fly on this mission and get an early look at the International Space Station is something that only came up a short time ago. So, as you look ahead toward the Expedition mission that you will command, talk about how you think this opportunity for a firsthand look at the station is going to assist you and your crewmates - both as you train for that mission and then as you actually go to conduct it.

We don't have exact simulator for Russian segment or American segment for training. That's why it's a good chance for us to have shuttle training and shuttle flight for next mission 5A.1. That's why it's good chance for us to have more experience and to work with Russian people or Jim and Susan. What I would like to do is work with Jim and Susan to look and see how we are going to work for our next mission. Susan and I will work for FGB repair, and Jim will help us. It's good chance to work together.

In the United States last year, the close of the 1900s, people made many lists, and the story of human space flight, from Yury Gagarin through the landing on the Moon, was voted one of the top five news stories of the entire 20th century. Well now you're part of a crew that is kicking off the 21st century with a mission that's designed to extend the human presence in orbit - a presence that you have done a lot in the past to help establish in your work in the Russian space program. Tell me, from your point of view, why is that important? What is the value of establishing a presence for humankind off of this planet?

From my point of view I think it's very important. It's just new environment for us and it's new point of view - not just for crewmember. We understand each other perfectly, I mean cosmonauts and astronauts. We have no problem, because people that could see Earth from the orbit and to be in this situation can understand each other much better than on the Earth. That's one reason. And another one, it's new environment, and it's new point of view, and from space to Earth and from crew to your family, your friends, your country, your people on the Earth, it's very interesting. For example, after my first mission, I change my point of view because it's absolutely unusual. I think if any people have any chance to be just one or two orbit, they can change their point of view for all stuff around them. That's what I think.

Greetings

Click on the image to hear Yury Usachev's greeting.
Mission Specialist, STS-101
Russian greeting

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