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1
00:00:01,839 --> 00:00:06,220
The International Space Station crew members
come from three countries and a variety of

2
00:00:06,220 --> 00:00:11,780
professional backgrounds, but they share a
desire to contribute to human space exploration

3
00:00:11,780 --> 00:00:14,440
beyond the low earth orbit.

4
00:00:14,440 --> 00:00:19,070
Doctor Koichi Wakata was born and raised in
Saitama, a bedroom community of Tokyo.

5
00:00:19,070 --> 00:00:24,100
He remembers watching the first moon landing
on television and wishing he could fly in

6
00:00:24,100 --> 00:00:30,870
space, but since there were no Japanese astronauts
then, he put the dream aside as impractical.

7
00:00:30,870 --> 00:00:34,710
But he had other interests, including baseball
and airplanes:

8
00:00:34,710 --> 00:00:42,530
I was very fascinated by airplanes ever since
I was a small boy, and I always want to, wanted

9
00:00:42,530 --> 00:00:49,630
to become an engineer or a pilot to, to make
and fly, um, an airplane.

10
00:00:49,630 --> 00:00:55,100
Wakata pursued that dream at Kyushu University,
where he earned a Bachelor's Degree in Aeronautical

11

00:00:55,100 --> 00:01:00,480
Engineering and a Masters in Applied Mechanics,
and then started his career as a structural

12
00:01:00,480 --> 00:01:02,610
engineer for Japan Airlines.

13
00:01:02,610 --> 00:01:08,240
Two years later when Japan's space agency
advertised for astronaut candidates, Wakata

14
00:01:08,240 --> 00:01:13,979
applied, and was selected in 1992 to begin
astronaut training at NASA's Johnson Space

15
00:01:13,979 --> 00:01:15,430
Center in Houston.

16
00:01:15,430 --> 00:01:21,329
In 1996 he was Japan's first-ever space shuttle
mission specialist on a flight where he ran

17
00:01:21,329 --> 00:01:27,679
the shuttle's robot arm to deploy and retrieve
satellites; in 2000 he used his robotics expertise

18
00:01:27,679 --> 00:01:33,329
again on the shuttle flight that installed
the Z-1 truss and a pressurized mating adapter

19
00:01:33,329 --> 00:01:35,840
on the International Space Station.

20
00:01:35,840 --> 00:01:41,469
After he finished his doctorate in aeronautical
engineering from Kyushu University in 2004,

21
00:01:41,469 --> 00:01:47,539
he completed training in Russia as a Soyuz
spacecraft flight engineer, and then in 2009

22
00:01:47,539 --> 00:01:54,329
became Japan's first space station crew member
as a part of Expeditions 18, 19 and 20, and

23
00:01:54,329 --> 00:02:01,049
expanded his robotics repertoire to include
Canadarm2, Dextre and the robotic arm on Japan's

24
00:02:01,049 --> 00:02:03,279
Kibo laboratory module.

25
00:02:03,279 --> 00:02:07,899
He's eager to keep doing what he can to prepare
the way for future exploration, and improve

26
00:02:07,899 --> 00:02:13,799
life on Earth:
I think we can gain new knowledge, new technologies

27
00:02:13,799 --> 00:02:19,021
that will, uh, that we benefit in our daily
life on the ground by going to space, and

28
00:02:19,021 --> 00:02:28,190
also I strongly believe human space program
is a vehicle, uh, for the survival of human

29
00:02:28,190 --> 00:02:29,190
species

30
00:02:29,190 --> 00:02:35,230
Mikhail Tyurin was born in Kolomna, Russia,
an historical town outside Moscow, but he

31
00:02:35,230 --> 00:02:40,069
lived in many places around the country growing
up in a military family.

32

00:02:40,069 --> 00:02:45,760
His interest in spaceflight did not focus
on becoming a cosmonaut himself:

33
00:02:45,760 --> 00:02:56,769
I did not have a period of my life when I
was dreaming and doing all my, all I could,

34
00:02:56,769 --> 00:03:00,379
overcoming difficulties to become a cosmonaut.

35
00:03:00,379 --> 00:03:03,749
I just loved this, uh, area.

36
00:03:03,749 --> 00:03:07,549
...and he focused on getting as close to it
as he could.

37
00:03:07,549 --> 00:03:12,400
Tyurin earned a degree in engineering from
the Moscow Aviation Institute and went right

38
00:03:12,400 --> 00:03:18,269
to work for the Rocket Space Corporation Energia
as an engineer, first specializing in ballistics

39
00:03:18,269 --> 00:03:23,620
and software development and later in methods
of training cosmonauts, methods he usually

40
00:03:23,620 --> 00:03:26,200
tried out on himself first.

41
00:03:26,200 --> 00:03:31,159
After nine years on the job he was selected
to join the cosmonaut corps; Tyurin made three

42
00:03:31,159 --> 00:03:37,040
spacewalks during his first trip to the International
Space Station in 2001 as a Flight Engineer

43
00:03:37,040 --> 00:03:45,359
on Expedition 3, and two more EVAs as flight
engineer on Expedition 14 in 2006 and 2007.

44
00:03:45,359 --> 00:03:50,299
He's pleased to be contributing to physiological
research that will prepare humans for future

45
00:03:50,299 --> 00:03:55,769
space exploration, and even more interested
in how some of the psychological results will

46
00:03:55,769 --> 00:04:01,879
be applied on Earth:
they can be used not just in space exploration

47
00:04:01,879 --> 00:04:10,420
but can be propagated and applied to human
relations in general, and, uh, much more in

48
00:04:10,420 --> 00:04:17,440
dem, in demand in various areas of our human
activity...

49
00:04:17,440 --> 00:04:23,220
Rick Mastracchio is a native of Waterbury,
Connecticut, and grew up there in the 1960s

50
00:04:23,220 --> 00:04:28,569
interested in the space program but not with
the idea that he'd ever fly in space himself:

51
00:04:28,569 --> 00:04:31,620
when I was a small kid I didn't know you could
even be an astronaut.

52
00:04:31,620 --> 00:04:35,099
It never occurred to me I could be an astronaut
someday.

53
00:04:35,099 --> 00:04:37,650
But I was always interested in math and science.

54
00:04:37,650 --> 00:04:43,250
I was always interested when the teacher spoke
about, uh, aviation-related topics or space,

55
00:04:43,250 --> 00:04:45,960
science-related topics, you know, when I was
in grade school.

56
00:04:45,960 --> 00:04:50,280
He took those interests to the university
of Connecticut—the first person in his family

57
00:04:50,280 --> 00:04:55,000
ever to go to college—and earned a Bachelor
Of Science Degree in Electrical Engineering

58
00:04:55,000 --> 00:04:59,750
and Computer Science, which got him a job
at Hamilton Standard developing guidance and

59
00:04:59,750 --> 00:05:04,229
flight control systems while he finished a
Masters of Science in Electrical Engineering

60
00:05:04,229 --> 00:05:05,630
at Rensselaer Polytechnic.

61
00:05:05,630 --> 00:05:12,130
At that time, he saw an ad from NASA looking
for new astronauts and decided to apply—what

62
00:05:12,130 --> 00:05:17,259
he got was a job offer from Rockwell to work
in shuttle operations, and he moved to Houston

63

00:05:17,259 --> 00:05:19,240
in 1987.

64
00:05:19,240 --> 00:05:24,490
three years later he joined NASA as an engineer
specializing in software development, then

65
00:05:24,490 --> 00:05:29,220
became a flight controller in ascent and entry
guidance and procedures, and was selected

66
00:05:29,220 --> 00:05:34,080
as an astronaut in 1996 after nine years of
applying.

67
00:05:34,080 --> 00:05:38,880
His first space shuttle flight was the 2000
mission that outfitted the International Space

68
00:05:38,880 --> 00:05:44,180
Station's new Zvezda module for its first
permanent crew; he made three spacewalks during

69
00:05:44,180 --> 00:05:49,660
his second trip to the station in 2007 on
a mission that delivered a truss segment and

70
00:05:49,660 --> 00:05:55,940
a new gyroscope, and three more EVAs on a
2010 resupply mission.

71
00:05:55,940 --> 00:06:01,479
He sees this station as a means to support
inevitable exploration well beyond the neighborhood

72
00:06:01,479 --> 00:06:06,810
of this blue planet:
we are meant to explore, “we” being the

73
00:06:06,810 --> 00:06:08,270

people here on this planet Earth.

74
00:06:08,270 --> 00:06:09,990
We want to go out and see what's out there.

75
00:06:09,990 --> 00:06:14,240
We want to know more about things and we can't
just do that through robotic systems.

76
00:06:14,240 --> 00:06:18,539
We have to send people to see things up close
and personal.

77
00:06:18,539 --> 00:06:23,030
Doctor Steve Swanson was born in Syracuse,
New York and moved with his family a number

78
00:06:23,030 --> 00:06:28,000
of times before ending up in Steamboat Springs,
Colorado as he entered his teens.

79
00:06:28,000 --> 00:06:34,259
It's a beautiful place, love the mountains,
I love the area, and, uh, when I grew up there

80
00:06:34,259 --> 00:06:39,099
it was definitely like a half agricultural
ranching community and half resort, and it

81
00:06:39,099 --> 00:06:40,699
was a great combination.

82
00:06:40,699 --> 00:06:45,669
He stayed at home for college, got his Bachelor's
Of Science in Engineering Physics at the University

83
00:06:45,669 --> 00:06:51,680
Of Colorado, but then went to Florida Atlantic
University to get his Masters Of Applied Science

84
00:06:51,680 --> 00:06:53,460
in Computer Systems.

85
00:06:53,460 --> 00:06:58,169
At that point he considered his options, and
the job of astronaut seemed to have what he

86
00:06:58,169 --> 00:06:59,789
was looking for.

87
00:06:59,789 --> 00:07:04,450
After a year working as an engineer in Phoenix
he got a job as an engineer at the Johnson

88
00:07:04,450 --> 00:07:09,889
Space Center's Aircraft Operations Division,
working on the Shuttle Training Aircraft while

89
00:07:09,889 --> 00:07:13,740
earning his Doctorate in Computer Science
from Texas A&M.

90
00:07:13,740 --> 00:07:19,470
He was chosen for the astronaut program in
1998 and made his first flight in 2007 on

91
00:07:19,470 --> 00:07:23,319
a mission to deliver a truss segment to the
International Space Station.

92
00:07:23,319 --> 00:07:28,789
Swanson made two spacewalks on that mission,
and two more on a 2009 shuttle flight that

93
00:07:28,789 --> 00:07:33,580
delivered another truss segment to outfit
the station to perform its mission.

94
00:07:33,580 --> 00:07:37,199

We're going off now, we're trying to get science
better, we're also trying to find maybe a,

95
00:07:37,199 --> 00:07:41,500
a place that we could go to, uh, to maybe,
you know, get resources off the moon.

96
00:07:41,500 --> 00:07:42,870
We could go explore Mars.

97
00:07:42,870 --> 00:07:47,349
All these kind of ideas are things I think
as human nature we just have to do

98
00:07:47,349 --> 00:07:52,490
Alexander Skvortsov was born in Schelkovo,
near Moscow, because his father's job—as

99
00:07:52,490 --> 00:07:57,580
a cosmonaut—brought the family to Star City,
a town with no maternity ward.

100
00:07:57,580 --> 00:08:01,889
But soon after his birth Skvortsov's father
left the cosmonaut corps, and the military

101
00:08:01,889 --> 00:08:04,750
took the family to Morshansk.

102
00:08:04,750 --> 00:08:12,520
And I still love the town, a very big quiet
river, a wonderful nature, wonderful forests,

103
00:08:12,520 --> 00:08:13,740
very good people.

104
00:08:13,740 --> 00:08:18,490
I like that town and I have, there are a lot
of people who graduated from high school with

105
00:08:18,490 --> 00:08:20,930
me, my classmates, still live there.

106
00:08:20,930 --> 00:08:27,069
After high school Skvortsov set out to fulfill
his dream of being a cosmonaut, like his father.

107
00:08:27,069 --> 00:08:31,919
After he completed study at the Stavropol
Air Force Pilot and Navigator School, he spent

108
00:08:31,919 --> 00:08:36,930
seven years in the National Air Defense Force
before studying at the Military Red Banner

109
00:08:36,930 --> 00:08:39,240
Air Defense Academy.

110
00:08:39,240 --> 00:08:44,340
Skvortsov graduated the academy in 1997, the
same year he was selected for the cosmonaut

111
00:08:44,340 --> 00:08:45,340
corps.

112
00:08:45,340 --> 00:08:50,650
He spent six months on the International Space
Station in 2010, including serving as station

113
00:08:50,650 --> 00:08:53,690
commander for Expedition 24.

114
00:08:53,690 --> 00:08:57,970
After he returned to Earth he finished his
studies at the Russian Academy of Civil Service

115
00:08:57,970 --> 00:09:05,050
to become a lawyer, and he retired from the
air force as a colonel in 2013.

116
00:09:05,050 --> 00:09:15,210
It is an enormous joy to look down to Earth,
and we really want to see Earth always looking

117
00:09:15,210 --> 00:09:20,840
as beautiful as we see it from space, a blue
planet with wonderful nature

118
00:09:20,840 --> 00:09:25,960
Oleg Artemiev was born in Riga, the capital
of Latvia, where his military officer father

119
00:09:25,960 --> 00:09:27,260
was stationed.

120
00:09:27,260 --> 00:09:32,180
But the family soon moved to Kazakhstan, to
the town now known as Baikonur, when Artemiev

121
00:09:32,180 --> 00:09:33,770
was a small boy.

122
00:09:33,770 --> 00:09:38,100
Although he lived in the place where people
were launched into space, he wanted to be

123
00:09:38,100 --> 00:09:39,100
a sailor.

124
00:09:39,100 --> 00:09:40,100
Cosmonauts?

125
00:09:40,100 --> 00:09:44,370
...we always thought of cosmonauts as the
people that we always have to go meet and

126
00:09:44,370 --> 00:09:45,370
greet.

127
00:09:45,370 --> 00:09:50,310
They would pull us out of the activities that
we actually enjoyed, they would line us up

128
00:09:50,310 --> 00:09:54,710
along the road and make us wave little flags
to greet them.

129
00:09:54,710 --> 00:09:59,470
After high school Artemiev went off to train
as a sailor, but when that didn't work out

130
00:09:59,470 --> 00:10:04,580
he went to the Tallinn Polytechnic Institute
and graduated into a job as an electrician,

131
00:10:04,580 --> 00:10:08,170
but soon left that to join the Soviet army.

132
00:10:08,170 --> 00:10:13,010
After two years in the service he went to
Moscow and was admitted to the Bauman Technical

133
00:10:13,010 --> 00:10:17,750
University, where he earned a degree in low
temperature physics and technology; that got

134
00:10:17,750 --> 00:10:22,520
him a job at the Rocket Space Corporation
Energia, where he worked building and testing

135
00:10:22,520 --> 00:10:28,730
space vehicles, including preparing the International
Space Station's Zvezda module for launch.

136
00:10:28,730 --> 00:10:35,210
He was selected to start training as a cosmonaut
in 2003; in 2009 he participated in the Mars-500

137
00:10:35,210 --> 00:10:41,470
experiment, along with future cosmonaut Sergey
Ryazanskiy, on his way to preparing for his

138
00:10:41,470 --> 00:10:43,310
first spaceflight assignment.

139
00:10:43,310 --> 00:10:54,460
I hope that my small contribution will help
those who will eventually make a first step

140
00:10:54,460 --> 00:11:01,720
on the surface of Mars or touch an asteroid,
bring something good back, maybe even see

141
00:11:01,720 --> 00:11:03,880
some extraterrestrial life.