1
00:00:03,659 --> 00:00:06,430
GEORGE DILLER: NASA reached to the West for
the European-built

2
00:00:06,430 --> 00:00:11,950
Columbus laboratory, and now it turns to the
East for a Japanese-made science module

3
00:00:11,950 --> 00:00:12,950
named Kibo,

4
00:00:12,950 --> 00:00:19,130
that means "Hope." The first Kibo segment,
a pressurized logistics module,

5
00:00:19,130 --> 00:00:22,490
along with a Canadian robotics system named
Dextre,

6
00:00:22,490 --> 00:00:25,550
will ride into orbit aboard space shuttle
Endeavour,

7
00:00:25,550 --> 00:00:29,449
bringing new potential for space research.

8
00:00:29,449 --> 00:00:33,320
Endeavour and its seven-member crew are ready
for an international mission,

9
00:00:33,320 --> 00:00:36,760
one that represents the collective space ambition
of three nations.

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00:00:36,760 --> 00:00:42,520
The countdown for the launch of space shuttle
Endeavour is under way.

11
00:00:42,520 --> 00:00:47,350

Live from Kennedy Space Center, this is continuing coverage of the countdown to launch

12
00:00:47,350 --> 00:00:50,410
of space shuttle Endeavour on mission STS-123.

13
00:00:50,410 --> 00:00:56,109
ALLARD BEUTEL: Thanks for joining us. I'm your host, Allard Beutel,

14
00:00:56,109 --> 00:00:58,129
news chief here at NASA's Kennedy Space Center.

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00:00:58,129 --> 00:01:01,341
We're less than 15 hours away from the launch of space shuttle Endeavour

16
00:01:01,341 --> 00:01:04,290
on the STS-123 mission. Just a few hours ago,

17
00:01:04,290 --> 00:01:06,399
technicians moved away a protective housing

18
00:01:06,399 --> 00:01:10,380
called the rotating service structure from Endeavour as launch preparations move closer

19
00:01:10,380 --> 00:01:14,830
to liftoff on Tuesday, March 11 at 2:28 a.m. Eastern.

20
00:01:14,830 --> 00:01:18,380
This mission is truly an international effort. The International Space Station is about to

21
00:01:18,380 --> 00:01:22,130
"go global" with elements from Russia, Europe, Canada,

22

00:01:22,130 --> 00:01:26,940
the United States and now Japan. Coming up,
we'll take a closer look at this 25th shuttle

23
00:01:26,940 --> 00:01:28,209
mission to the station.

24
00:01:28,209 --> 00:01:31,990
And to help us do that, NASA and Canadian
Space Agency astronaut Julie Payette will

25
00:01:31,990 --> 00:01:36,270
be here in a moment to discuss the work that
awaits the Endeavour's crew members.

26
00:01:36,270 --> 00:01:39,440
But before we begin, let's take a quick look
at those seven astronauts.

27
00:01:39,440 --> 00:01:46,240
DILLER: A veteran of three spaceflights, Commander
Dom Gorie leads the team

28
00:01:46,240 --> 00:01:47,581
on the 16-day mission.

29
00:01:47,581 --> 00:01:54,420
STS-123 will be the first spaceflight for
Pilot Gregory Johnson and Mission Specialists

30
00:01:54,420 --> 00:01:58,720
Bob Behnken, Mike Foreman and Garrett Reisman.

31
00:01:58,720 --> 00:02:03,250
Also a veteran of three spaceflights, Mission
Specialist Rick Linnehan has logged more

32
00:02:03,250 --> 00:02:05,750
than 43 days in space.

33
00:02:05,750 --> 00:02:10,250
And Takao Doi carries the hope for Japan as
he will be the first to enter the

34
00:02:10,250 --> 00:02:13,680
Japanese Kibo logistics segment.

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00:02:13,680 --> 00:02:17,690
BEUTEL: Now that we've met the STS-123 crew,
let's meet veteran

36
00:02:17,690 --> 00:02:21,490
NASA astronaut Julie Payette, who is scheduled
actually to fly on the

37
00:02:21,490 --> 00:02:22,490
STS-127 mission next year.

38
00:02:22,490 --> 00:02:23,590
JULIE PAYETTE: That is correct.

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00:02:23,590 --> 00:02:24,680
BEUTEL: And thank you for joining us.

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00:02:24,680 --> 00:02:25,680
JULIE PAYETTE: Thank you.

41
00:02:25,680 --> 00:02:29,200
BEUTEL: So let's get -- what do you have to
do, and what is the crew doing right now?

42
00:02:29,200 --> 00:02:34,750
PAYETTE: They're probably about to get up,
because they've shifted their days.

43
00:02:34,750 --> 00:02:41,890
We're launching at 2 a.m. in the morning,
so they will wake up late in the morning,

44
00:02:41,890 --> 00:02:43,950
have breakfast and then start preparing.

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00:02:43,950 --> 00:02:48,540
There's a whole suit-up process that goes
on that takes quite a while.

46
00:02:48,540 --> 00:02:54,120
They have to put on their suit in this very,
very historical room where we suit up in the

47
00:02:54,120 --> 00:02:55,120
crew quarters.

48
00:02:55,120 --> 00:02:59,260
That's the same room where the Apollo astronauts
going to the moon put their white

49
00:02:59,260 --> 00:03:03,600
space suits. So it's kind of special for all
the astronauts. But that takes a little while.

50
00:03:03,600 --> 00:03:07,730
They have to make sure the suits won't leak.
And then they will walk out to the pad hours

51
00:03:07,730 --> 00:03:11,180
before the launch, get strapped in, then await
the countdown.

52
00:03:11,180 --> 00:03:14,460
BEUTEL: Well, like you said, you're right,
this mission is primarily, for us here in

53
00:03:14,460 --> 00:03:15,460
the

54
00:03:15,460 --> 00:03:16,460
Eastern Time Zone, it's primarily a night

mission.

55
00:03:16,460 --> 00:03:19,770
All the spacewalks and everything will take
place, as we call it "sleep shift,"

56
00:03:19,770 --> 00:03:24,430
and take the time to sleep during the day
and get up and work at night.

57
00:03:24,430 --> 00:03:28,819
Now, you went to the space station in 1999.
So obviously, besides it being bigger,

58
00:03:28,819 --> 00:03:30,950
how has the station changed since then?

59
00:03:30,950 --> 00:03:34,530
PAYETTE: Oh, it's changed enormously, and
I feel very privileged and I will have seen

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00:03:34,530 --> 00:03:39,060
it from the very beginning of the program
to almost the completion of the construction.

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00:03:39,060 --> 00:03:43,280
When I was there in 1999, there was only two
modules. And they had been put together just

62
00:03:43,280 --> 00:03:44,302
a month before we had arrived.

63
00:03:44,302 --> 00:03:51,400
It was a Russian module, Zarya, and the Node
1, Unity. Inside, there was nobody.

64
00:03:51,400 --> 00:03:52,690
Actually, there was almost nothing.

65

00:03:52,690 --> 00:03:57,240
We were bringing most of the initial equipment
to outfit the interior and a little bit

66
00:03:57,240 --> 00:04:00,209
of the exterior. So when we opened the hatch,

67
00:04:00,209 --> 00:04:05,340
the ground had switched off the light from
the ground and basically turned on the heat,

68
00:04:05,340 --> 00:04:11,090
but there was nobody on board. Today we have
people permanently inside the station.

69
00:04:11,090 --> 00:04:16,190
We have permanent crew that rotate every six
months. So it's going to be very different

70
00:04:16,190 --> 00:04:18,970
when we knock at the hatch this time --

71
00:04:18,970 --> 00:04:22,090
we're going to have somebody else on the other
side. And of course, it's immense

72
00:04:22,090 --> 00:04:24,950
compared to what I saw in 1999.

73
00:04:24,950 --> 00:04:28,810
BEUTEL: Yeah, it's a three-bedroom-sized apartment,
and you're right, we've had people

74
00:04:28,810 --> 00:04:29,810
living there for eight years now,

75
00:04:29,810 --> 00:04:34,030
coming up on eight years of permanent crewing
of the station, which is exactly what

76
00:04:34,030 --> 00:04:35,030
we're supposed to be doing up there.

77
00:04:35,030 --> 00:04:41,370
The STS-123 crew will deliver the first section
of Japan's laboratory, Kibo.

78
00:04:41,370 --> 00:04:43,240
What does this small module add to the overall
station?

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00:04:43,240 --> 00:04:47,900
PAYETTE: This is a milestone. You can appreciate
that Japan has been waiting for this

80
00:04:47,900 --> 00:04:52,730
moment for a long, long time, and it's been
preparing all of its equipment for launch.

81
00:04:52,730 --> 00:04:58,690
Because the Kibo module, the main module,
is so large, it takes the entire cargo bay

82
00:04:58,690 --> 00:04:59,690
of

83
00:04:59,690 --> 00:05:04,630
the space shuttle. It's impossible to send
it with every other element that comes with

84
00:05:04,630 --> 00:05:05,630
it.

85
00:05:05,630 --> 00:05:10,061
So what we decided is to send the pressurized
module that stowage space, some

86
00:05:10,061 --> 00:05:14,290
experimental equipment in there, ahead of

time,

87
00:05:14,290 --> 00:05:19,460
because it's small enough that we can park
it on one of the nodes on the space station

88
00:05:19,460 --> 00:05:24,090
until the next flight, when the big Kibo module
will be hooked up to the station.

89
00:05:24,090 --> 00:05:29,340
And once that is accomplished, then the crew
will pick up the pressurized, small

90
00:05:29,340 --> 00:05:33,110
pressurized module and put it on top of Kibo
where it's going to stay.

91
00:05:33,110 --> 00:05:36,730
It's its final location for the rest of the
life of station.

92
00:05:36,730 --> 00:05:40,340
BEUTEL: And then actually, it's exactly what
you said, we have to do three shuttle

93
00:05:40,340 --> 00:05:43,570
missions because this laboratory, the Japanese
laboratory is so big.

94
00:05:43,570 --> 00:05:48,520
This is the first one, and well, coincidentally,
your mission, STS-127 next year,

95
00:05:48,520 --> 00:05:50,370
will be the final mission when we take up
the last pieces.

96
00:05:50,370 --> 00:05:51,370
PAYETTE: Indeed.

97
00:05:51,370 --> 00:05:53,080
BEUTEL: How are all these pieces going to
work together?

98
00:05:53,080 --> 00:05:56,169
PAYETTE: Oh, well, the pressurized module
of course is a laboratory.

99
00:05:56,169 --> 00:05:58,660
Just like Destiny, the U.S. lab is a laboratory,

100
00:05:58,660 --> 00:06:02,280
Columbus that we just installed for the European
Space Agency is a laboratory,

101
00:06:02,280 --> 00:06:05,479
and we have the Russian laboratories as well.

102
00:06:05,479 --> 00:06:10,040
This is where we conduct the experiments inside.
The little pressurized module that we're

103
00:06:10,040 --> 00:06:13,570
bringing up on 123 is for stowage. It's actually
quite small,

104
00:06:13,570 --> 00:06:19,510
it's the size of a closet when you go inside.
You can't float about. Kibo is very large

105
00:06:19,510 --> 00:06:20,510
and

106
00:06:20,510 --> 00:06:24,390
will have incredible capacity for microgravity
science inside.

107
00:06:24,390 --> 00:06:29,650

But what the Japanese have also developed
is an exposed facility. And we the astronauts

108
00:06:29,650 --> 00:06:32,090
have kind of dubbed it "the porch."

109
00:06:32,090 --> 00:06:36,740
Because you install it at the very tip of
the big module, and in there will be experiments

110
00:06:36,740 --> 00:06:39,360
which will be exposed to the vacuum of space.

111
00:06:39,360 --> 00:06:45,160
They won't be inside a pressurized module
inside normal air and normal pressure.

112
00:06:45,160 --> 00:06:48,050
They will be out there exposed to the elements
of space.

113
00:06:48,050 --> 00:06:50,900
And that is what we're bringing on the third
flight, the flight that I'll be on.

114
00:06:50,900 --> 00:06:52,990
BEUTEL: And that helps -- why do you want
to do that, why do you want to have --

115
00:06:52,990 --> 00:06:58,419
PAYETTE: Well, particularly we want to study
materials. We know materials degrade in space.

116
00:06:58,419 --> 00:07:04,110
Space is a very hostile environment. It has
radiation, micrometeorites,

117
00:07:04,110 --> 00:07:10,810
extremes of temperature that changes all the
time. It's no pressure, no air, no nothing.

118
00:07:10,810 --> 00:07:15,360
So materials degrade in space. When we build satellites,

119
00:07:15,360 --> 00:07:19,169
we want the satellites to be as robust as possible because it costs a lot of money to

120
00:07:19,169 --> 00:07:20,169
send a

121
00:07:20,169 --> 00:07:23,479
satellite out there, and we certainly depend on these. Same for a spacecraft.

122
00:07:23,479 --> 00:07:28,720
And spacecraft that house people, particularly, we want them to be safe. So we'll be

123
00:07:28,720 --> 00:07:32,710
testing some materials. We'll be testing also some fluids,

124
00:07:32,710 --> 00:07:40,750
and trying to do a new mixture of metals and materials to see if we can come up with

125
00:07:40,750 --> 00:07:41,860
things more robust.

126
00:07:41,860 --> 00:07:47,270
And we need then afterwards to just expose them to the vacuum of space and see how they

127
00:07:47,270 --> 00:07:48,270
behave.

128
00:07:48,270 --> 00:07:52,250

BEUTEL: Okay, that takes place next year.
Besides obviously the Japanese module that

129
00:07:52,250 --> 00:07:55,729
we're taking up, a new Canadian robotics system
named Dextre is flying on Endeavour.

130
00:07:55,729 --> 00:07:58,260
And it's as close as you can get to an extra
spacewalker.

131
00:07:58,260 --> 00:08:03,930
DILLER: Dextre is another Canadian contribution
to the International Space Station.

132
00:08:03,930 --> 00:08:10,169
It supplements a robotic arm already in place
called Canadarm2.

133
00:08:10,169 --> 00:08:14,490
Dextre is like an extra pair of hands that
will extend the arm's reach to help future

134
00:08:14,490 --> 00:08:17,160
construction of the space station.

135
00:08:17,160 --> 00:08:23,580
With its big arm, Canadarm2 can move around
the station's exterior, move large modules

136
00:08:23,580 --> 00:08:26,050
and help spacewalkers perform their tasks.

137
00:08:26,050 --> 00:08:32,380
But Dextre can carry out operations too delicate
for the big arm. It has a unique ability to

138
00:08:32,380 --> 00:08:35,620
tackle assignments with more precision.

139
00:08:35,620 --> 00:08:40,769
Think of Dextre as helping hands that use
a set of arms equipped with claws to handle

140
00:08:40,769 --> 00:08:45,149
very precise movements. It can't replace a
spacewalker completely,