



1
00:00:36,959 --> 00:00:35,069
for launch complex 39 at the Kennedy

2
00:00:39,510 --> 00:00:36,969
Space Center in Florida this is shuttle

3
00:00:43,049 --> 00:00:39,520
launch control at t-minus 3 hours and

4
00:00:45,389 --> 00:00:43,059
holding we are now in the final five

5
00:00:47,340 --> 00:00:45,399
hours of the countdown for the launch of

6
00:00:50,240 --> 00:00:47,350
space shuttle Endeavour on a NASA

7
00:00:52,619 --> 00:00:50,250
sponsored microgravity research flight

8
00:00:54,299 --> 00:00:52,629
the countdown is being controlled from

9
00:00:56,850 --> 00:00:54,309
firing room 1 at the launch control

10
00:00:59,520 --> 00:00:56,860
center and we are on schedule for a

11
00:01:04,350 --> 00:00:59,530
liftoff at 6:30 a.m. Eastern Time this

12
00:01:06,990 --> 00:01:04,360
morning this is the eleventh flight for

13
00:01:08,910 --> 00:01:07,000

endeavour and the 77th mission of the

14

00:01:17,639 --> 00:01:08,920

space shuttle program since launches

15

00:01:19,700 --> 00:01:17,649

began in April 1981 14 years ago and the

16

00:01:24,630 --> 00:01:19,710

fifty-second since return to flight in

17

00:01:28,050 --> 00:01:24,640

1988 this STS 77 mission has a planned

18

00:01:32,550 --> 00:01:28,060

duration of 10 days zero hours 37

19

00:01:34,529 --> 00:01:32,560

minutes if all goes as planned with the

20

00:01:36,419 --> 00:01:34,539

landing expected to occur at Kennedy

21

00:01:39,179 --> 00:01:36,429

Space Center on the morning of May 29th

22

00:01:43,920 --> 00:01:39,189

at approximately 707 a.m. Eastern Time

23

00:01:45,749 --> 00:01:43,930

assuming an on-time launch today the

24

00:01:48,080 --> 00:01:45,759

five member flight crew of Endeavour are

25

00:01:51,090 --> 00:01:48,090

being awakened at this time at the

26
00:01:52,950 --> 00:01:51,100
astronaut quarters and approximately a

27
00:01:55,319 --> 00:01:52,960
half hour they will be entering the

28
00:01:57,870 --> 00:01:55,329
dining room for breakfast after which

29
00:01:59,370 --> 00:01:57,880
they will have a weather briefing and

30
00:02:02,580 --> 00:01:59,380
receive a status on the countdown

31
00:02:05,270 --> 00:02:02,590
activity will then go to the suit up

32
00:02:08,130 --> 00:02:05,280
room and on their launch and entry suits

33
00:02:11,550 --> 00:02:08,140
and a 3:10 a.m. they will depart the

34
00:02:13,050 --> 00:02:11,560
crew quarters for the 20-minute ride out

35
00:02:16,370 --> 00:02:13,060
to launch pad 39b

36
00:02:19,770 --> 00:02:16,380
at the edge of the Atlantic Ocean

37
00:02:22,170 --> 00:02:19,780
weather wise we continue to have very

38
00:02:24,030 --> 00:02:22,180

favorable conditions for a launch today

39

00:02:26,550 --> 00:02:24,040

just a 10 percent chance of not meeting

40

00:02:29,819 --> 00:02:26,560

our launch weather criteria due

41

00:02:31,620 --> 00:02:29,829

primarily to the slight chance of an

42

00:02:33,300 --> 00:02:31,630

offshore shower out in the

43

00:02:34,860 --> 00:02:33,310

and moving onshore around the Cape

44

00:02:37,500 --> 00:02:34,870

vicinity but with the two and a half our

45

00:02:55,670 --> 00:02:37,510

launch window there's ample time to wait

46

00:03:03,510 --> 00:03:01,020

and here are all six of our STS 77 crew

47

00:03:07,680 --> 00:03:03,520

members ready for breakfast and our

48

00:03:11,280 --> 00:03:07,690

traditional cake on the table at the end

49

00:03:16,850 --> 00:03:11,290

mission specialist dan birch our flight

50

00:03:19,790 --> 00:03:16,860

engineer on this mission Curt brown our

51
00:03:24,740 --> 00:03:19,800
pilot on this flight will be busy with

52
00:03:29,400 --> 00:03:24,750
numerous rendezvous activities with our

53
00:03:31,820 --> 00:03:29,410
commander John Casper making his fourth

54
00:03:34,620 --> 00:03:31,830
flight into space today

55
00:03:36,600 --> 00:03:34,630
mission specialist Mario Ronco making

56
00:03:43,210 --> 00:03:36,610
his third trip into space mission

57
00:03:49,030 --> 00:03:45,490
and Andy Thomas from Australia our

58
00:03:50,710 --> 00:03:49,040
payload commander during the flight in

59
00:04:30,240 --> 00:03:50,720
Australia and the Canadian mission

60
00:04:34,719 --> 00:04:32,499
this is shuttle launch control at

61
00:04:37,570 --> 00:04:34,729
t-minus three hours and holding we're

62
00:04:40,839 --> 00:04:37,580
we're in the suit-up room now with the

63
00:04:49,090 --> 00:04:40,849

astronauts we just saw Commander John

64

00:04:56,800 --> 00:04:51,490

and your as mission specialist Andy

65

00:05:02,860 --> 00:04:56,810

Thomas our commander once again John

66

00:05:06,430 --> 00:05:02,870

Casper and here is Dan birch making his

67

00:05:11,830 --> 00:05:06,440

third flight he flew previously on STS

68

00:05:14,380 --> 00:05:11,840

51 in 1993 and STS 68 in 1994 here is

69

00:05:20,050 --> 00:05:14,390

Canadian mission specialist Marc Garneau

70

00:05:22,390 --> 00:05:20,060

I'll be doing a number of microgravity

71

00:05:23,800 --> 00:05:22,400

research position of experiments

72

00:05:28,390 --> 00:05:23,810

particularly with the aquatic research

73

00:05:32,950 --> 00:05:28,400

facility and here is Mario run co making

74

00:06:00,100 --> 00:05:32,960

his third trip into space he was on STS

75

00:06:05,740 --> 00:06:03,790

again and here are our astronauts now

76
00:06:10,450 --> 00:06:05,750
just leaving a suit-up room headed for

77
00:06:11,559 --> 00:06:10,460
the elevator third floor of the

78
00:06:20,110 --> 00:06:11,569
operations and check-out building

79
00:06:25,090 --> 00:06:23,140
and director of flight crew operations

80
00:06:28,450 --> 00:06:25,100
Dave leasman is with him

81
00:06:33,749 --> 00:06:28,460
Bob Cabana will be flying the weather

82
00:06:33,759 --> 00:07:03,860
and here the cop

83
00:07:09,029 --> 00:07:06,059
this is shuttle launch control at

84
00:07:09,719 --> 00:07:09,039
t-minus two hours 41 minutes 52 seconds

85
00:07:11,999 --> 00:07:09,729
and counting

86
00:07:14,610 --> 00:07:12,009
where we've just seen the STS 77

87
00:07:18,320 --> 00:07:14,620
astronauts come off the elevator on the

88
00:07:21,860 --> 00:07:18,330

fixed service structure and they will be

89

00:07:38,040 --> 00:07:21,870

walking across the orbiter access arm to

90

00:07:43,600 --> 00:07:41,170

vision specialist and Canadian astronaut

91

00:08:21,420 --> 00:07:43,610

Marc Garneau in the picture now making

92

00:08:26,440 --> 00:08:23,710

here in the firing room we're getting

93

00:08:27,970 --> 00:08:26,450

ready now for the final pre-flight

94

00:08:47,240 --> 00:08:27,980

alignment of the inertial measurement

95

00:09:15,180 --> 00:08:52,790

PD ROTC standby to perform final

96

00:09:20,100 --> 00:09:17,400

definitely NFP is looking no issue here

97

00:09:23,250 --> 00:09:20,110

cleared to launch confidence and

98

00:09:24,360 --> 00:09:23,260

endeavor loose you and your band have a

99

00:09:29,250 --> 00:09:24,370

great mission and we'll see you back

100

00:09:30,780 --> 00:09:29,260

here in nine days - Emily thank you for

101
00:09:34,110 --> 00:09:30,790
all the great work you folks have done

102
00:09:54,390 --> 00:09:34,120
and we're ready to go fly an entity

103
00:09:58,510 --> 00:09:56,680
and we're now activating the firing

104
00:10:26,050 --> 00:09:58,520
chain on the solid rocket booster an

105
00:10:30,250 --> 00:10:28,450
firing chain is armed

106
00:10:33,730 --> 00:10:30,260
sound suppression water system is

107
00:10:34,180 --> 00:10:33,740
activated rain safety command systems

108
00:10:39,550 --> 00:10:34,190
are armed

109
00:10:45,040 --> 00:10:39,560
t-minus 10 9 8 7 ignition sequence start

110
00:10:47,769 --> 00:10:45,050
five four three two one zero and liftoff

111
00:10:49,630 --> 00:10:47,779
of the space shuttle Endeavour to

112
00:10:55,700 --> 00:10:49,640
develop the practical and the beneficial

113
00:11:01,350 --> 00:10:59,790

Roger roll endeavour Houston now

114

00:11:04,230 --> 00:11:01,360

controlling endeavours underway on an

115

00:11:06,840 --> 00:11:04,240

11th trip to space currently rolling on

116

00:11:08,100 --> 00:11:06,850

course when eath east-northeast

117

00:11:10,700 --> 00:11:08,110

trajectory away from the Kennedy Space

118

00:11:13,910 --> 00:11:10,710

Center toward a 39 degree inclination

119

00:11:17,100 --> 00:11:13,920

153 nautical mile altitude to orbit

120

00:11:18,770 --> 00:11:17,110

endeavour already traveling 430 miles

121

00:11:24,060 --> 00:11:18,780

per hour

122

00:11:25,710 --> 00:11:24,070

altitude 2 miles 3 engines on board

123

00:11:27,150 --> 00:11:25,720

endeavor have now followed back to

124

00:11:28,620 --> 00:11:27,160

two-thirds throttle to prepare the

125

00:11:31,370 --> 00:11:28,630

spacecraft to pass through the area of

126
00:11:34,170 --> 00:11:31,380
maximum air pressure and go supersonic

127
00:11:37,950 --> 00:11:34,180
endeavour speed now 700 miles per hour

128
00:11:40,080 --> 00:11:37,960
altitude four and a half miles two and a

129
00:11:50,840 --> 00:11:40,090
half miles east-northeast to the Kennedy

130
00:11:59,580 --> 00:11:57,900
endeavour go at throttle up three

131
00:12:03,120 --> 00:11:59,590
engines on endeavour now back at full

132
00:12:06,390 --> 00:12:03,130
throttle now it's 210 miles never

133
00:12:08,280 --> 00:12:06,400
traveling 1,400 miles per hour eight

134
00:12:10,770 --> 00:12:08,290
miles east-northeast of the Canady Space

135
00:12:13,460 --> 00:12:10,780
Center one and a half minutes since

136
00:12:15,840 --> 00:12:13,470
launch endeavours already used more than

137
00:12:17,940 --> 00:12:15,850
two to quarter million pounds of

138
00:12:33,870 --> 00:12:17,950

propellant the spacecraft weighs less

139

00:12:39,360 --> 00:12:36,389

one minute 50 seconds since liftoff

140

00:12:39,720 --> 00:12:39,370

endeavour now traveling 2,700 miles per

141

00:12:43,530 --> 00:12:39,730

hour

142

00:12:44,910 --> 00:12:43,540

altitude 24 miles 24 miles downrange

143

00:12:46,470 --> 00:12:44,920

from the Kennedy Space Center flak on

144

00:12:58,670 --> 00:12:46,480

floor standing by for burnout and

145

00:13:02,930 --> 00:13:00,620

Chris said it never has you loud and

146

00:13:06,670 --> 00:13:02,940

clear what a right boy oh it's great and

147

00:14:49,750 --> 00:13:08,840

sounds good endeavour in we're right

148

00:15:07,210 --> 00:14:52,720

are you getting our downlink yes we have

149

00:15:14,710 --> 00:15:10,800

and I'm gonna hold the needle up to you

150

00:15:16,120 --> 00:15:14,720

and as I was pushing it in I felt a

151

00:15:18,640 --> 00:15:16,130

little resistance I thought it was

152

00:15:20,650 --> 00:15:18,650

deceptive that I was going through but

153

00:15:22,000 --> 00:15:20,660

it you can see what happened I don't

154

00:15:37,070 --> 00:15:22,010

know if I'm too close right now and he

155

00:15:41,240 --> 00:15:39,800

in view in this view the Kennedy Space

156

00:15:45,019 --> 00:15:41,250

Center is the Shuttle Landing Facility

157

00:15:48,019 --> 00:15:45,029

runway visible as the long mark there on