1
00:00:05,300 --> 00:00:02,690
from NASA's Kennedy Space Center in

2
00:00:07,789 --> 00:00:05,310
Florida you're watching live coverage of

3
00:00:11,600 --> 00:00:07,799
the Parker Solar Probe mission to unlock

4
00:00:13,970 --> 00:00:11,610
mysteries of the sun's atmosphere good

5
00:00:15,980 --> 00:00:13,980
morning I'm NASA's Maureen Lewis thanks

6
00:00:18,230 --> 00:00:15,990
for waking up early this Sunday morning

7
00:00:20,000 --> 00:00:18,240
for our second launch attempt we have

8
00:00:21,950 --> 00:00:20,010
team coverage of today's launch from

9
00:00:23,929 --> 00:00:21,960
nasa's Torrey McClendon at a viewing

10
00:00:26,750 --> 00:00:23,939
area near the iconic Vehicle Assembly

11
00:00:29,210 --> 00:00:26,760
Building NASA edges franklin Fitzgerald

12
00:00:31,040 --> 00:00:29,220
and Blair Allen and NASA's Josh Finch

13
00:00:31,609 --> 00:00:31,050

and Mick Waltman at the mission director

14
00:00:33,350 --> 00:00:31,619
Center

15
00:00:35,090 --> 00:00:33,360
we'll have in-depth interviews on

16
00:00:36,680 --> 00:00:35,100
everything you need to know about Parker

17
00:00:38,510 --> 00:00:36,690
Solar Probe and how the weather is

18
00:00:40,639 --> 00:00:38,520
shaping up but first

19
00:00:44,030 --> 00:00:40,649
Parker Solar Probe is targeted to launch

20
00:00:46,580 --> 00:00:44,040
at 3:31 this morning Eastern Time from

21
00:00:49,459 --> 00:00:46,590
launch complex 37 at Cape Canaveral Air

22
00:00:52,160 --> 00:00:49,469
Force Station the launch window is 65

23
00:00:54,410 --> 00:00:52,170
minutes long Parker will take off on a

24
00:00:56,540 --> 00:00:54,420
United Launch Alliance Delta 4 heavy

25
00:00:59,299 --> 00:00:56,550
rocket speeding up to four hundred

26
00:01:01,099 --> 00:00:59,309
thirty thousand miles per hour in orbit

27
00:01:03,619 --> 00:01:01,109
that's fast enough to get from

28
00:01:06,679 --> 00:01:03,629
Philadelphia to Washington DC in just

29
00:01:08,600 --> 00:01:06,689
one second it will travel seven times

30
00:01:11,510 --> 00:01:08,610
closer to the Sun than any spacecraft

31
00:01:14,270 --> 00:01:11,520
before Parker will help us understand

32
00:01:16,160 --> 00:01:14,280
how the Sun affects weather in space so

33
00:01:18,020 --> 00:01:16,170
why is this space weather important

34
00:01:20,600 --> 00:01:18,030
first a little background

35
00:01:22,910 --> 00:01:20,610
Parker Solar Probe is named after dr.

36
00:01:25,520 --> 00:01:22,920
Eugene Parker a physicist who figured

37
00:01:28,760 --> 00:01:25,530
out 60 years ago that our star actually

38
00:01:31,850 --> 00:01:28,770

has its own wind and storms and they can

39
00:01:34,039 --> 00:01:31,860
spread far into space this space weather

40
00:01:36,260 --> 00:01:34,049
can disrupt communication signals from

41
00:01:39,170 --> 00:01:36,270
our satellites and even cause power

42
00:01:41,300 --> 00:01:39,180
outages on earth besides impacts here on

43
00:01:43,819 --> 00:01:41,310
the ground we also need to understand

44
00:01:46,639 --> 00:01:43,829
solar wind to help us explore deeper

45
00:01:48,859 --> 00:01:46,649
into space just as ocean explorers need

46
00:01:50,870 --> 00:01:48,869
to understand currents NASA needs to

47
00:01:53,510 --> 00:01:50,880
understand space weather to help us send

48
00:01:56,120 --> 00:01:53,520
astronauts to the moon Mars and other

49
00:01:58,100 --> 00:01:56,130
distant destinations scientists have

50
00:02:00,859 --> 00:01:58,110
sought answers about space weather for

51
00:02:03,080 --> 00:02:00,869
more than 60 years and will send Parker

52
00:02:05,899 --> 00:02:03,090
in to temperatures of 2,500 degrees

53
00:02:07,819 --> 00:02:05,909
Fahrenheit to find them coming up we'll

54
00:02:10,100 --> 00:02:07,829
find out how Parker will manage to get

55
00:02:12,650 --> 00:02:10,110
so close to our star without burning up

56
00:02:13,550 --> 00:02:12,660
but first we are now about 28 minutes

57
00:02:15,470 --> 00:02:13,560
from launch

58
00:02:17,300 --> 00:02:15,480
so let's check in with NASA's Josh Finch

59
00:02:19,280 --> 00:02:17,310
and Mick Waltman and Kennedy's mission

60
00:02:21,500 --> 00:02:19,290
director Center for an update hi guys

61
00:02:22,880 --> 00:02:21,510
good morning Murray I'm Joshua Finch and

62
00:02:24,440 --> 00:02:22,890
I'm here with Nick Waldman good morning

63
00:02:25,790 --> 00:02:24,450

Mick good morning Josh I'm happy to be

64
00:02:28,070 --> 00:02:25,800
here on behalf of NASA's launch services

65
00:02:29,809 --> 00:02:28,080
program and we're happy to have you this

66
00:02:31,820 --> 00:02:29,819
is our second launch attempt for NASA's

67
00:02:33,070 --> 00:02:31,830
Parker Solar Probe on the Delta 4 can

68
00:02:35,120 --> 00:02:33,080
you tell us a little bit about yesterday

69
00:02:36,710 --> 00:02:35,130
why we scrubbed in what happened right

70
00:02:38,780 --> 00:02:36,720
after that yeah absolutely a lot of

71
00:02:40,940 --> 00:02:38,790
works going on by the launch team since

72
00:02:42,949 --> 00:02:40,950
yesterday's launch attempt they've been

73
00:02:45,229 --> 00:02:42,959
working on a few things the gaseous

74
00:02:47,479 --> 00:02:45,239
helium bottle pressure limit that

75
00:02:49,580 --> 00:02:47,489
resulted in yesterday's morning scrub

76
00:02:51,890 --> 00:02:49,590
was evaluated by United Launch Alliance

77
00:02:54,170 --> 00:02:51,900
and the NASA launch teams for today's OP

78
00:02:56,930 --> 00:02:54,180
the teams will continue to monitor that

79
00:02:59,930 --> 00:02:56,940
limit however they did place in some new

80
00:03:02,180 --> 00:02:59,940
limits for the port and starboard common

81
00:03:04,220 --> 00:03:02,190
booster cores so they'll continue to

82
00:03:06,170 --> 00:03:04,230
watch that today after D tanking

83
00:03:08,240 --> 00:03:06,180
yesterday the team did perform

84
00:03:11,930 --> 00:03:08,250
inspections of the launch vehicle bond

85
00:03:13,190 --> 00:03:11,940
on foam insulation or bow fee due to the

86
00:03:15,470 --> 00:03:13,200
cold temperatures achieved during

87
00:03:17,180 --> 00:03:15,480
cryogenic tanking yesterday minor

88
00:03:19,699 --> 00:03:17,190

repairs were required in some of the

89
00:03:22,190 --> 00:03:19,709
interface areas they made those repairs

90
00:03:24,080 --> 00:03:22,200
verified them this morning they're ready

91
00:03:27,259 --> 00:03:24,090
to support today's launch tanking

92
00:03:31,009 --> 00:03:27,269
operations and then we began with moving

93
00:03:33,949 --> 00:03:31,019
the MST earlier today to get ready for

94
00:03:35,840 --> 00:03:33,959
launch early this morning and you can

95
00:03:37,910 --> 00:03:35,850
see that MST or mobile service tower

96
00:03:39,949 --> 00:03:37,920
standing behind the delta 4 heavy rocket

97
00:03:41,690 --> 00:03:39,959
on the screen the teams also just

98
00:03:44,180 --> 00:03:41,700
received a weather briefing from the US

99
00:03:46,009 --> 00:03:44,190
Air Force 45th Space Wing the launch

100
00:03:47,930 --> 00:03:46,019
weather officer for today's mission is

101
00:03:49,970 --> 00:03:47,940
looking into a whole host of weather

102
00:03:52,400 --> 00:03:49,980
related details such as wind speed cloud

103
00:03:53,870 --> 00:03:52,410
coverage and more and launch teams need

104
00:03:56,810 --> 00:03:53,880
to know this before committing to launch

105
00:03:59,240 --> 00:03:56,820
that report came back pretty great our

106
00:04:04,039 --> 00:03:59,250
probability of violation is now just 5%

107
00:04:05,840 --> 00:04:04,049
that means we are 95% go when's 6 knots

108
00:04:08,900 --> 00:04:05,850
out of the southwest the temperature is

109
00:04:10,360 --> 00:04:08,910
at about 78 degrees those concerns that

110
00:04:12,920 --> 00:04:10,370
we were initially looking at with the

111
00:04:14,720 --> 00:04:12,930
anvil clouds it doesn't look like any of

112
00:04:16,789 --> 00:04:14,730
them are going to drift into the launch

113
00:04:19,130 --> 00:04:16,799

area today so we are really good on

114
00:04:20,659 --> 00:04:19,140
cloud coverage for today so a good news

115
00:04:23,450 --> 00:04:20,669
story with the weather improving for us

116
00:04:25,130 --> 00:04:23,460
and Mick can you tell us a little bit

117
00:04:26,930 --> 00:04:25,140
about the Delta for heavy with the

118
00:04:28,370 --> 00:04:26,940
additional third stage that we're

119
00:04:30,500 --> 00:04:28,380
seeing on our screen now yeah absolutely

120
00:04:32,630 --> 00:04:30,510
Josh you know due to the extremely high

121
00:04:34,340 --> 00:04:32,640
energy required for this mission the

122
00:04:36,950 --> 00:04:34,350
delta 4 heavy launch vehicle was chosen

123
00:04:38,990 --> 00:04:36,960
by United Launch Alliance and NASA LSP

124
00:04:42,740 --> 00:04:39,000
the launch vehicle is unique in the fact

125
00:04:44,480 --> 00:04:42,750
that it has three first stage hydrogen

126
00:04:47,300 --> 00:04:44,490
fueled common booster cores

127
00:04:48,710 --> 00:04:47,310
each have an RS 68 a main engine to

128
00:04:50,780 --> 00:04:48,720
provide the initial thrust out of

129
00:04:53,240 --> 00:04:50,790
Earth's atmosphere on top of the center

130
00:04:55,880 --> 00:04:53,250
common booster core you have a delta

131
00:04:57,920 --> 00:04:55,890
cryogenic second stage with an RL 10 B

132
00:04:59,860 --> 00:04:57,930
engine which is used to achieve an

133
00:05:04,400 --> 00:04:59,870
intermediate escape orbit once in space

134
00:05:07,190 --> 00:05:04,410
on top of that we have a 63 foot 5 meter

135
00:05:09,290 --> 00:05:07,200
by sector composite fairing which

136
00:05:10,880 --> 00:05:09,300
protects Parker Solar Probe as it

137
00:05:13,790 --> 00:05:10,890
ascends through Earth's atmosphere on

138
00:05:15,830 --> 00:05:13,800

its way to space and inside the fairing

139
00:05:18,250 --> 00:05:15,840
along with the Parker Solar Probe

140
00:05:20,720 --> 00:05:18,260
spacecraft we have a third stage

141
00:05:22,850 --> 00:05:20,730
provided by Northrop Grumman innovation

142
00:05:25,370 --> 00:05:22,860
systems a solid rocket motor that is

143
00:05:27,410 --> 00:05:25,380
called the star 48 bv it's a Vectra

144
00:05:29,510 --> 00:05:27,420
Boulder that's used to put that final

145
00:05:32,180 --> 00:05:29,520
push to send Parker Solar Probe on its

146
00:05:33,740 --> 00:05:32,190
trajectory to the Sun all of these

147
00:05:36,350 --> 00:05:33,750
vehicle features play an important role

148
00:05:38,720 --> 00:05:36,360
in getting Parker Solar Probe on its way

149
00:05:41,090 --> 00:05:38,730
to touch the Sun this morning and again

150
00:05:42,890 --> 00:05:41,100
a live shot there of the delta 4 heavy

151
00:05:45,860 --> 00:05:42,900
rocket with the additional third stage

152
00:05:47,210 --> 00:05:45,870
at Space Launch Complex 37 and make

153
00:05:48,530 --> 00:05:47,220
we've been sitting here in the mission

154
00:05:50,150 --> 00:05:48,540
directors Center listening in to the

155
00:05:52,190 --> 00:05:50,160
launch teams can you give me an update

156
00:05:54,159 --> 00:05:52,200
on on what's happened so far in today's

157
00:05:56,270 --> 00:05:54,169
countdown yeah so far the teams have

158
00:05:58,100 --> 00:05:56,280
proceeded through the launch count

159
00:05:59,870 --> 00:05:58,110
launch conductor Scout Barney has

160
00:06:02,450 --> 00:05:59,880
orchestrated all launch steps with the

161
00:06:05,480 --> 00:06:02,460
launch teams to get the cryogenic

162
00:06:08,060 --> 00:06:05,490
loading done on first stage and second

163
00:06:10,330 --> 00:06:08,070

stage teams have finished that off and

164
00:06:13,400 --> 00:06:10,340
our maintaining and topping the stage is

165
00:06:16,550 --> 00:06:13,410
currently right now so a lot going on

166
00:06:18,980 --> 00:06:16,560
here as we move toward a liftoff at 3:31

167
00:06:20,510 --> 00:06:18,990
a.m. we are inside of a built-in hold at

168
00:06:22,250 --> 00:06:20,520
the moment but we'll continue to monitor

169
00:06:22,490 --> 00:06:22,260
the countdown here the mission directors

170
00:06:24,260 --> 00:06:22,500
Center