1
00:02:16,710 --> 00:02:14,070
when i first saw the first light image

2
00:02:18,229 --> 00:02:16,720
from kepler my reaction was wow there

3
00:02:21,110 --> 00:02:18,239
are a lot of stars

4
00:02:23,350 --> 00:02:21,120
in this image we we are covering

5
00:02:24,949 --> 00:02:23,360
100 square degrees of sky

6
00:02:27,830 --> 00:02:24,959
and there are literally millions of

7
00:02:30,869 --> 00:02:27,840
stars in that field so the image just

8
00:02:37,350 --> 00:02:30,879
glitters with stars it was

9
00:02:41,750 --> 00:02:39,350
the habitable zone

10
00:02:43,670 --> 00:02:41,760
is the distance from a star where the

11
00:02:46,390 --> 00:02:43,680
temperature of the planet

12
00:02:47,670 --> 00:02:46,400
is amenable to water being liquid on the

13
00:02:49,750 --> 00:02:47,680

surface so it's

14
00:02:51,670 --> 00:02:49,760
like the temperature we have on earth if

15
00:02:54,229 --> 00:02:51,680
you're too close to the star it's too

16
00:02:55,990 --> 00:02:54,239
hot the oceans boil away

17
00:02:57,750 --> 00:02:56,000
uh you just you're just left with a hot

18
00:02:58,710 --> 00:02:57,760
rock if you're too far away from the

19
00:03:00,550 --> 00:02:58,720
star

20
00:03:01,990 --> 00:03:00,560
it's too cold everything freezes out

21
00:03:04,710 --> 00:03:02,000
you've got an ice world so we're

22
00:03:06,550 --> 00:03:04,720
interested in this goldilocks zone

23
00:03:12,869 --> 00:03:06,560
where liquid water can be present we

24
00:03:15,589 --> 00:03:14,309
if we find an earth in the habitable

25
00:03:17,270 --> 00:03:15,599
zone i'm going to pop a bottle of

26
00:03:19,589 --> 00:03:17,280
champagne and celebrate that's what i'm

27
00:03:20,949 --> 00:03:19,599
going to do personally

28
00:03:21,990 --> 00:03:20,959
i think a lot of others will be joining

29
00:03:23,830 --> 00:03:22,000
me

30
00:03:25,190 --> 00:03:23,840
one of the challenges though is we need

31
00:03:26,869 --> 00:03:25,200
to make sure that we're really looking

32
00:03:29,110 --> 00:03:26,879
at an earth-like planet there are a lot

33
00:03:30,949 --> 00:03:29,120
of effects out there that can masquerade

34
00:03:32,869 --> 00:03:30,959
like transiting planets

35
00:03:34,630 --> 00:03:32,879
and so we have a very rigorous follow-up

36
00:03:36,710 --> 00:03:34,640
observing program make sure that we

37
00:03:38,070 --> 00:03:36,720
don't have a false detection

38
00:03:40,550 --> 00:03:38,080

and that we're looking at something else

39
00:03:42,550 --> 00:03:40,560
but once we have that confirmation

40
00:03:44,710 --> 00:03:42,560
that we found an earth-like planet

41
00:03:46,949 --> 00:03:44,720
orbiting the habitable zone

42
00:03:48,869 --> 00:03:46,959
we will know that we are not

43
00:03:51,110 --> 00:03:48,879
the only world

44
00:03:52,229 --> 00:03:51,120
that's capable of having liquid water in

45
00:04:00,229 --> 00:03:52,239
the surface

46
00:04:04,229 --> 00:04:01,830
was not designed to take pretty pictures

47
00:04:06,550 --> 00:04:04,239
kepler was designed to allow us to

48
00:04:09,990 --> 00:04:06,560
measure the brightness of individual

49
00:04:11,030 --> 00:04:10,000
stars in the field originally 170 000 of

50
00:04:12,390 --> 00:04:11,040
them

51
00:04:13,350 --> 00:04:12,400
later on down to about a hundred

52
00:04:15,110 --> 00:04:13,360
thousand

53
00:04:16,390 --> 00:04:15,120
we want to be able every 30 minutes to

54
00:04:18,390 --> 00:04:16,400
be able to measure the brightness of

55
00:04:20,550 --> 00:04:18,400
stars so we're not we didn't design a

56
00:04:22,469 --> 00:04:20,560
telescope to take pretty pictures

57
00:04:24,469 --> 00:04:22,479
we designed a telescope to make these

58
00:04:30,629 --> 00:04:24,479
specific very accurate brightness

59
00:04:36,070 --> 00:04:32,469
it's a great milestone

60
00:04:38,150 --> 00:04:36,080
the first light shows us that all the 84

61
00:04:40,150 --> 00:04:38,160
channels all the detectors are working

62
00:04:42,550 --> 00:04:40,160
working well we're seeing millions of

63
00:04:44,550 --> 00:04:42,560

stars in our field of view and a few

64
00:04:51,670 --> 00:04:44,560
more tweaks some calibration and we'll

65
00:04:55,670 --> 00:04:53,749
there are something like 30 people in

66
00:04:57,909 --> 00:04:55,680
the united states there are a couple of

67
00:04:59,990 --> 00:04:57,919
hundred in europe all

68
00:05:01,110 --> 00:05:00,000
who want this data desperately because

69
00:05:02,469 --> 00:05:01,120
they know

70
00:05:04,310 --> 00:05:02,479
they're gonna we're gonna be making

71
00:05:06,390 --> 00:05:04,320
tremendous discoveries in a lot of

72
00:05:08,150 --> 00:05:06,400
different scientific areas areas about

73
00:05:11,029 --> 00:05:08,160
finding planets areas about

74
00:05:13,590 --> 00:05:11,039
understanding the insides the structure

75
00:05:15,909 --> 00:05:13,600
of stars how do they evolve we will

76
00:05:16,710 --> 00:05:15,919
actually watch a star

77
00:05:20,070 --> 00:05:16,720
live

78
00:05:22,310 --> 00:05:20,080
it will change while we actually watch

79
00:05:27,510 --> 00:05:22,320
so everybody every team member is

80
00:05:31,110 --> 00:05:30,070
22 seconds

81
00:05:35,029 --> 00:05:31,120
green board here in the mission

82
00:05:38,950 --> 00:05:36,469
15 seconds

83
00:05:40,390 --> 00:05:38,960
13 seconds green board

84
00:05:41,270 --> 00:05:40,400
t-minus 10

85
00:05:42,070 --> 00:05:41,280
9

86
00:05:43,189 --> 00:05:42,080
8

87
00:05:44,150 --> 00:05:43,199
7

88
00:05:45,350 --> 00:05:44,160

6

89
00:05:46,310 --> 00:05:45,360
5

90
00:05:47,430 --> 00:05:46,320
4

91
00:05:50,870 --> 00:05:47,440
3

92
00:05:53,189 --> 00:05:50,880
2 indigenous engine start one zero and

93
00:05:56,150 --> 00:05:53,199
liftoff of the delta ii rocket with

94
00:05:58,390 --> 00:05:56,160
kepler on a search for planets in some

95
00:06:00,070 --> 00:05:58,400
way like our own air engine chamber

96
00:06:05,189 --> 00:06:00,080
pressures are building groundlet solid

97
00:06:10,550 --> 00:06:07,590
increasing at this time

98
00:06:18,870 --> 00:06:10,560
the pressure's looking good

99
00:06:23,270 --> 00:06:20,309
recovering from the initial launch

100
00:06:30,070 --> 00:06:25,830
guessing 34 seconds mach 1 vehicle is

101
00:06:36,710 --> 00:06:32,550
motor chamber pressure is beginning to

102
00:06:38,309 --> 00:06:36,720
trail off as we're passing 45 seconds

103
00:06:40,150 --> 00:06:38,319
engine chamber pressure good steady

104
00:06:42,309 --> 00:06:40,160
state value

105
00:06:43,510 --> 00:06:42,319
symmetrical burn on the uh groundlet

106
00:06:45,670 --> 00:06:43,520
solids

107
00:07:01,110 --> 00:06:45,680
coming up 55 seconds and we have a