1
00:00:26,180 --> 00:00:23,660
I'm Lori Meggs and I'm bill hubscher

2
00:00:27,590 --> 00:00:26,190
welcome to focus on Marshall on today's

3
00:00:29,210 --> 00:00:27,600
program we're going to show you a lab

4
00:00:31,850 --> 00:00:29,220
here at Marshall that can take this and

5
00:00:38,350 --> 00:00:31,860
build this the first let's go for a ride

6
00:00:38,360 --> 00:00:45,369
and we are about 400 to head over to see

7
00:00:49,190 --> 00:00:47,660
these are some of the exciting new

8
00:00:51,049 --> 00:00:49,200
images of the space shuttle during

9
00:00:52,550 --> 00:00:51,059
launch we're here now in the imaging

10
00:00:54,140 --> 00:00:52,560
system lab with Eric quarter has been

11
00:00:55,940 --> 00:00:54,150
instrumental in developing some of those

12
00:00:58,190 --> 00:00:55,950
systems Eric tell me what you do in this

13
00:00:59,930 --> 00:00:58,200

lab well during the last 3 years our

14
00:01:02,030 --> 00:00:59,940
primary focus has been on developing

15
00:01:04,760 --> 00:01:02,040
requirements and a design to look at the

16
00:01:06,530 --> 00:01:04,770
shuttle overall vehicle during flight

17
00:01:08,240 --> 00:01:06,540
one of the primary designs that we

18
00:01:09,920 --> 00:01:08,250
worked on is the external tank camera

19
00:01:11,660 --> 00:01:09,930
which you've had views of that everyone

20
00:01:14,389 --> 00:01:11,670
is seeing and with the next upcoming

21
00:01:16,490 --> 00:01:14,399
flight we have two SRB cameras on each

22
00:01:18,139 --> 00:01:16,500
solid booster so we'll have a total of

23
00:01:20,930 --> 00:01:18,149
five cameras viewing the shoulder and

24
00:01:22,730 --> 00:01:20,940
flight primary focus is to look the

25
00:01:24,260 --> 00:01:22,740
overall health of the vehicle in

26
00:01:26,029 --> 00:01:24,270
particular we're looking at the wing

27
00:01:28,040 --> 00:01:26,039
leading edges and we're also looking at

28
00:01:29,930 --> 00:01:28,050
the bipod region do you have any

29
00:01:31,790 --> 00:01:29,940
hardware you can show us yes we do have

30
00:01:33,499 --> 00:01:31,800
an external tank camera that we can look

31
00:01:35,029 --> 00:01:33,509
at we have models of the solid rocket

32
00:01:37,490 --> 00:01:35,039
booster camera that we can view as well

33
00:01:39,800 --> 00:01:37,500
alright let's take a look we're joined

34
00:01:41,240 --> 00:01:39,810
now by Jeremy Meyers who has a table

35
00:01:42,740 --> 00:01:41,250
full of hardware is going to show us

36
00:01:44,270 --> 00:01:42,750
we're going to start with the camera

37
00:01:45,980 --> 00:01:44,280
that was instrumental in the return to

38
00:01:48,410 --> 00:01:45,990

flight effort right Jeremy that's right

39
00:01:51,980 --> 00:01:48,420
this camera here is an example of the

40
00:01:53,960 --> 00:01:51,990
camera which flew on sts-114 and this

41
00:01:56,300 --> 00:01:53,970
unit here was actually what caught the

42
00:01:58,249 --> 00:01:56,310
debris and was used by the video

43
00:02:00,949 --> 00:01:58,259
analysts to understand what happened

44
00:02:02,900 --> 00:02:00,959
post flight we as a group here have

45
00:02:04,460 --> 00:02:02,910
worked with lockheed martin and

46
00:02:08,350 --> 00:02:04,470
developing what the requirements needed

47
00:02:10,820 --> 00:02:08,360
to be also we worked with evie 12 and

48
00:02:12,559 --> 00:02:10,830
determined what the field of view would

49
00:02:15,650 --> 00:02:12,569
be they can do modeling within that

50
00:02:17,479 --> 00:02:15,660
group so by working as a team through

51
00:02:20,089 --> 00:02:17,489
with all these organizations we were

52
00:02:22,160 --> 00:02:20,099
able to have a system which actually

53
00:02:25,550 --> 00:02:22,170
ended up being imaging solution of the

54
00:02:26,839 --> 00:02:25,560
year in 2006 you've got a couple of

55
00:02:28,090 --> 00:02:26,849
other newer cameras here they're going

56
00:02:30,460 --> 00:02:28,100
to fly on the next shuttle

57
00:02:32,110 --> 00:02:30,470
as well right that's right during the

58
00:02:34,360 --> 00:02:32,120
next flight we're going to have cameras

59
00:02:36,820 --> 00:02:34,370
on the SRB and we've been working with

60
00:02:40,000 --> 00:02:36,830
USA to develop those same requirements

61
00:02:42,310 --> 00:02:40,010
to model fill the view with EV 12 and

62
00:02:43,360 --> 00:02:42,320
going through that same process and

63
00:02:46,240 --> 00:02:43,370

we're going to have a camera that's

64
00:02:48,730 --> 00:02:46,250
going to be on the aft of the SRB as

65
00:02:50,170 --> 00:02:48,740
well as the forward of the SRB looking

66
00:02:52,510 --> 00:02:50,180
at the shuttle and what about the

67
00:02:55,000 --> 00:02:52,520
housing for this one well of course we

68
00:02:56,770 --> 00:02:55,010
have to rehouse these to harden them and

69
00:02:58,420 --> 00:02:56,780
there's a process that's gone through

70
00:02:59,770 --> 00:02:58,430
that to withstand the thermal

71
00:03:02,980 --> 00:02:59,780
environments because these are on the

72
00:03:04,540 --> 00:03:02,990
outside of the vehicle now you're also

73
00:03:06,220 --> 00:03:04,550
working on cameras for the next

74
00:03:08,170 --> 00:03:06,230
generation of space vehicles what we

75
00:03:11,530 --> 00:03:08,180
have over here well we're also looking

76
00:03:13,210 --> 00:03:11,540
at developing requirements and looking

77
00:03:17,110 --> 00:03:13,220
at various camera systems which will be

78
00:03:18,670 --> 00:03:17,120
able to fly on the next vehicle leave

79
00:03:20,830 --> 00:03:18,680
you have a really small one there too

80
00:03:22,840 --> 00:03:20,840
that's right this is an example of a

81
00:03:25,780 --> 00:03:22,850
small camera that might have a possible

82
00:03:28,060 --> 00:03:25,790
solution there's also higher resolution

83
00:03:29,470 --> 00:03:28,070
cameras so there's all kinds of things

84
00:03:31,330 --> 00:03:29,480
you have to consider as far as

85
00:03:34,180 --> 00:03:31,340
requirements what's the best solution

86
00:03:35,710 --> 00:03:34,190
what will fulfill the needs for NASA in

87
00:03:37,870 --> 00:03:35,720
the future then you can get that one in

88
00:03:39,160 --> 00:03:37,880

very hard to reach places that's right

89
00:03:41,650 --> 00:03:39,170
what about these two cameras you have

90
00:03:44,140 --> 00:03:41,660
melted here well another possibility is

91
00:03:47,230 --> 00:03:44,150
to develop a stereo pair and that allows

92
00:03:50,380 --> 00:03:47,240
you to measure accurately wear something

93
00:03:52,990 --> 00:03:50,390
that you see is in space also we have

94
00:03:55,360 --> 00:03:53,000
GPS systems which is allows us to add

95
00:03:57,670 --> 00:03:55,370
Tommy and that allows you to look at

96
00:03:59,650 --> 00:03:57,680
different cameras and to link up what

97
00:04:01,330 --> 00:03:59,660
you're looking at at the same time you

98
00:04:03,550 --> 00:04:01,340
also have this black box to move from

99
00:04:06,040 --> 00:04:03,560
videotape to pure digital recording

100
00:04:07,900 --> 00:04:06,050
right this is an example of another

101
00:04:09,910 --> 00:04:07,910
project that the group here is working

102
00:04:13,420 --> 00:04:09,920
on and this flies on a sounding rocket

103
00:04:15,280 --> 00:04:13,430
but this is a video recorder and it's a

104
00:04:17,050 --> 00:04:15,290
digital video recorder so basically you

105
00:04:20,349 --> 00:04:17,060
could have camera systems coming in and

106
00:04:22,000 --> 00:04:20,359
recording that real-time Jeremy thanks

107
00:04:23,890 --> 00:04:22,010
very much let's head back over to Eric

108
00:04:25,540 --> 00:04:23,900
and Lori we're back here with Eric in

109
00:04:26,770 --> 00:04:25,550
the image characterization lab and this

110
00:04:28,630 --> 00:04:26,780
is where you actually look at the

111
00:04:30,310 --> 00:04:28,640
performance of the camera that's correct

112
00:04:32,050 --> 00:04:30,320
we take the camera that we've design we

113
00:04:33,700 --> 00:04:32,060

bring it in here we look at the distinct

114
00:04:34,980 --> 00:04:33,710
Slyke lens distortion a single noise

115
00:04:37,410 --> 00:04:34,990
ratio

116
00:04:38,880 --> 00:04:37,420
from that data we utilize that to look

117
00:04:40,470 --> 00:04:38,890
at the shuttle data that we get back

118
00:04:42,120 --> 00:04:40,480
from the external tank camera for

119
00:04:43,560 --> 00:04:42,130
instance and we can determine size of

120
00:04:46,830 --> 00:04:43,570
objects that are in the field of you and

121
00:04:48,510 --> 00:04:46,840
that gives us a nice indian system all

122
00:04:49,830 --> 00:04:48,520
right we can't wait to see the next

123
00:04:50,910 --> 00:04:49,840
images that are on the next shuttle