1
00:00:06,230 --> 00:00:03,030
technology developed for the u.s space

2
00:00:08,470 --> 00:00:06,240
program is being put to use on earth

3
00:00:10,470 --> 00:00:08,480
helping the state of florida recover

4
00:00:12,150 --> 00:00:10,480
from one of the worst hurricanes it has

5
00:00:14,470 --> 00:00:12,160
ever encountered

6
00:00:16,790 --> 00:00:14,480
just days after hurricane andrew carved

7
00:00:19,349 --> 00:00:16,800
a path of destruction across florida

8
00:00:22,150 --> 00:00:19,359
nasa's john c stennis space center

9
00:00:24,790 --> 00:00:22,160
responded to a request for assistance by

10
00:00:27,109 --> 00:00:24,800
florida governor lawton childs

11
00:00:29,029 --> 00:00:27,119
because of a long-time partnership

12
00:00:31,669 --> 00:00:29,039
florida officials were aware of the

13
00:00:34,870 --> 00:00:31,679

mississippi space center's expertise in

14
00:00:37,350 --> 00:00:34,880
remote sensing and how this technology

15
00:00:38,790 --> 00:00:37,360
could be used to assist hurricane relief

16
00:00:40,790 --> 00:00:38,800
efforts

17
00:00:43,350 --> 00:00:40,800
stennis personnel flew down to south

18
00:00:45,750 --> 00:00:43,360
florida on a nasa learjet but is

19
00:00:47,750 --> 00:00:45,760
equipped with specialized sensors

20
00:00:50,950 --> 00:00:47,760
these sensors took photographic-like

21
00:00:53,750 --> 00:00:50,960
images of the hurricane-stricken region

22
00:00:56,229 --> 00:00:53,760
two types of images were acquired color

23
00:00:57,670 --> 00:00:56,239
infrared aerial photography and digital

24
00:01:00,150 --> 00:00:57,680
scanner data

25
00:01:02,069 --> 00:01:00,160
nasa scientist bruce davis said both

26
00:01:03,270 --> 00:01:02,079
types are important for different

27
00:01:06,310 --> 00:01:03,280
reasons

28
00:01:09,109 --> 00:01:06,320
the photography that we took was

29
00:01:12,789 --> 00:01:11,670
critical to the disaster assessment

30
00:01:14,950 --> 00:01:12,799
procedure

31
00:01:16,870 --> 00:01:14,960
it allowed for an immediate assessment

32
00:01:19,910 --> 00:01:16,880
of the hardest hit areas in south dake

33
00:01:22,630 --> 00:01:19,920
county the digital data that we acquired

34
00:01:26,870 --> 00:01:22,640
will be useful later on in the context

35
00:01:30,149 --> 00:01:26,880
of evaluating evaluating policies

36
00:01:32,310 --> 00:01:30,159
regulations building codes zoning

37
00:01:34,630 --> 00:01:32,320
so forth and so on the photography was

38
00:01:37,030 --> 00:01:34,640

was crucial in understanding the hardest

39
00:01:39,749 --> 00:01:37,040
hit areas forming

40
00:01:41,910 --> 00:01:39,759
photographic maps so that damage

41
00:01:44,550 --> 00:01:41,920
assessment teams could get in the field

42
00:01:46,789 --> 00:01:44,560
prioritize the areas to go to and go to

43
00:01:48,550 --> 00:01:46,799
those hardest hit areas first

44
00:01:50,550 --> 00:01:48,560
florida officials use the aerial

45
00:01:53,429 --> 00:01:50,560
photography to assess the amount of

46
00:01:55,749 --> 00:01:53,439
damage in dollars and to determine which

47
00:01:57,670 --> 00:01:55,759
areas had been the hardest hit

48
00:01:59,429 --> 00:01:57,680
so that relief efforts could be

49
00:02:01,830 --> 00:01:59,439
prioritized

50
00:02:04,389 --> 00:02:01,840
when davis compared infrared photos of

51
00:02:06,950 --> 00:02:04,399
homestead florida taken before the

52
00:02:09,190 --> 00:02:06,960
hurricane with those he took less than

53
00:02:10,229 --> 00:02:09,200
one week after andrew went across south

54
00:02:13,750 --> 00:02:10,239
florida

55
00:02:15,190 --> 00:02:13,760
the storm's destruction was evident

56
00:02:17,110 --> 00:02:15,200
what we have are color infrared

57
00:02:19,030 --> 00:02:17,120
photography of

58
00:02:21,030 --> 00:02:19,040
before hurricane andrew and after

59
00:02:23,510 --> 00:02:21,040
hurricane andrew as you can see the

60
00:02:25,990 --> 00:02:23,520
downtown area of homestead here

61
00:02:27,110 --> 00:02:26,000
and then trailer parks residential areas

62
00:02:29,430 --> 00:02:27,120
up in here

63
00:02:31,830 --> 00:02:29,440

the after the hurricane photography

64
00:02:33,990 --> 00:02:31,840
shows a great deal of destruction

65
00:02:35,910 --> 00:02:34,000
in an area here where you see some

66
00:02:37,110 --> 00:02:35,920
warehouses and strip commercial

67
00:02:39,430 --> 00:02:37,120
development

68
00:02:41,830 --> 00:02:39,440
much of that's been destroyed or heavily

69
00:02:42,710 --> 00:02:41,840
damaged the trailer park that was right

70
00:02:45,030 --> 00:02:42,720
here

71
00:02:48,070 --> 00:02:45,040
they're actually only one two three

72
00:02:50,070 --> 00:02:48,080
units remaining standing right here and

73
00:02:52,470 --> 00:02:50,080
in the residential area that once was in

74
00:02:54,309 --> 00:02:52,480
this general region you see a great deal

75
00:02:56,309 --> 00:02:54,319
of debris

76
00:02:58,309 --> 00:02:56,319
out in there representing heavy damage

77
00:03:00,869 --> 00:02:58,319
to the residential district

78
00:03:03,110 --> 00:03:00,879
these maps provided vital information to

79
00:03:04,790 --> 00:03:03,120
the front line disaster assessment and

80
00:03:06,710 --> 00:03:04,800
relief teams

81
00:03:08,869 --> 00:03:06,720
knowing which areas needed immediate

82
00:03:11,509 --> 00:03:08,879
attention and which roads were passable

83
00:03:13,589 --> 00:03:11,519
or piled high with debris gave workers

84
00:03:16,149 --> 00:03:13,599
the help they needed to speed up the

85
00:03:18,550 --> 00:03:16,159
distribution of relief supplies

86
00:03:20,869 --> 00:03:18,560
the color infrared imagery is also being

87
00:03:23,670 --> 00:03:20,879
used to study the storm's impact on the

88
00:03:25,670 --> 00:03:23,680

state's important natural resources

89
00:03:28,710 --> 00:03:25,680
officials are using the information to

90
00:03:30,949 --> 00:03:28,720
study beach loss erosion and damage done

91
00:03:33,270 --> 00:03:30,959
to the mangrove areas in this image

92
00:03:36,309 --> 00:03:33,280
which is a pre andrew or before the

93
00:03:39,430 --> 00:03:36,319
hurricane the red tones here are

94
00:03:41,110 --> 00:03:39,440
lush healthy green vegetation

95
00:03:43,750 --> 00:03:41,120
over here is the

96
00:03:45,430 --> 00:03:43,760
after hurricane photography and as

97
00:03:47,350 --> 00:03:45,440
you'll notice there are no red tones

98
00:03:49,190 --> 00:03:47,360
indicating that all of the green leaves

99
00:03:50,949 --> 00:03:49,200
have been stripped from the trees the

100
00:03:53,030 --> 00:03:50,959
trunks are laid over in the direction of

101
00:03:55,430 --> 00:03:53,040
the wind and that all we really have

102
00:03:57,270 --> 00:03:55,440
left here are some short low-lying

103
00:03:58,949 --> 00:03:57,280
grasses

104
00:04:01,110 --> 00:03:58,959
the mangrove forests are important

105
00:04:03,589 --> 00:04:01,120
because they form a natural buffer

106
00:04:05,990 --> 00:04:03,599
against tidal surges which are driven in

107
00:04:08,390 --> 00:04:06,000
by hurricanes and the high winds they

108
00:04:09,910 --> 00:04:08,400
protect communities that lie inland from

109
00:04:11,910 --> 00:04:09,920
coastal areas

110
00:04:14,309 --> 00:04:11,920
color infrared photography and digital

111
00:04:16,789 --> 00:04:14,319
scanner imagery are important tools in

112
00:04:18,789 --> 00:04:16,799
disaster assessment both are crucial in

113
00:04:21,189 --> 00:04:18,799

solving immediate problems but the

114
00:04:22,469 --> 00:04:21,199
digital data will be used for long-term

115
00:04:24,870 --> 00:04:22,479
planning

116
00:04:26,950 --> 00:04:24,880
this digital imagery differs from this

117
00:04:28,469 --> 00:04:26,960
color infrared photography in that it is

118
00:04:31,590 --> 00:04:28,479
digital in nature

119
00:04:34,070 --> 00:04:31,600
and can be incorporated as computer maps

120
00:04:37,270 --> 00:04:34,080
which will enable

121
00:04:41,510 --> 00:04:37,280
local government officials to overlay

122
00:04:45,350 --> 00:04:41,520
other types of maps onto it and assess

123
00:04:47,270 --> 00:04:45,360
the type of let's say zoning

124
00:04:49,749 --> 00:04:47,280
flood district

125
00:04:52,950 --> 00:04:49,759
network power utilities so forth and so

126
00:04:54,310 --> 00:04:52,960
on on this imagery and see where did the

127
00:04:56,469 --> 00:04:54,320
damage occur

128
00:04:57,430 --> 00:04:56,479
how can they change their policies to

129
00:04:59,590 --> 00:04:57,440
then

130
00:05:01,110 --> 00:04:59,600
prevent as much damage as occurring the

131
00:05:03,749 --> 00:05:01,120
next time

132
00:05:05,909 --> 00:05:03,759
what i'm particularly proud of is the

133
00:05:07,990 --> 00:05:05,919
fact that we responded very quickly to

134
00:05:09,909 --> 00:05:08,000
the governor's request

135
00:05:11,110 --> 00:05:09,919
and that we were able to put useful

136
00:05:14,790 --> 00:05:11,120
information

137
00:05:17,670 --> 00:05:14,800
in his hands in a very rapid manner when

138
00:05:19,909 --> 00:05:17,680

time was critical nasa was there sharing

139
00:05:21,830 --> 00:05:19,919
space developed technology to help in

140
00:05:24,390 --> 00:05:21,840
hurricane relief efforts

141
00:05:27,029 --> 00:05:24,400
this assistance continues as the state

142
00:05:28,950 --> 00:05:27,039
looks for ways to rebuild communities

143
00:05:30,870 --> 00:05:28,960
left destroyed