1
00:00:19,290 --> 00:00:16,589
it was called one of the worst forest

2
00:00:21,720 --> 00:00:19,300
fires in a hundred years the summer

3
00:00:24,630 --> 00:00:21,730
Wileman jello stone National Park burned

4
00:00:27,299 --> 00:00:24,640
out of control extreme heat low rainfall

5
00:00:29,280 --> 00:00:27,309
and powerful rims fuel fires that

6
00:00:34,380 --> 00:00:29,290
eventually swept over a third of the

7
00:00:37,319 --> 00:00:34,390
park the key to controlling such a

8
00:00:39,510 --> 00:00:37,329
crisis is knowing where the fire is and

9
00:00:41,730 --> 00:00:39,520
where it's spreading the most important

10
00:00:43,920 --> 00:00:41,740
tool for the Forest Service is an

11
00:00:46,440 --> 00:00:43,930
infrared camera system capable of seeing

12
00:00:49,230 --> 00:00:46,450
through smoke to pick out hot swap some

13
00:00:51,710 --> 00:00:49,240

fire fronts from the air talk by

14
00:00:54,180 --> 00:00:51,720
analyzing infrared strip photography

15
00:00:57,990 --> 00:00:54,190
interpreters plus these areas on the map

16
00:01:01,110 --> 00:00:58,000
for firefighters to use hot areas appear

17
00:01:03,680 --> 00:01:01,120
dark wrinkled areas wipe the system

18
00:01:06,140 --> 00:01:03,690
designed by NASA's Jet Propulsion lab

19
00:01:08,420 --> 00:01:06,150
in Pasadena California has been a

20
00:01:11,749 --> 00:01:08,430
standard firefighting resource for many

21
00:01:13,640 --> 00:01:11,759
years in the near future JPL will design

22
00:01:16,100 --> 00:01:13,650
a new system with the Forest Service

23
00:01:18,170 --> 00:01:16,110
that locates fires transmits the

24
00:01:20,450 --> 00:01:18,180
information to a portable ground station

25
00:01:24,080 --> 00:01:20,460
and automatically plots them on a map

26
00:01:26,120 --> 00:01:24,090
all within minutes studies made at

27
00:01:28,730 --> 00:01:26,130
NASA's Ames Research Center in Mountain

28
00:01:30,529 --> 00:01:28,740
View California have also resulted in

29
00:01:33,649 --> 00:01:30,539
major breakthroughs in forest fire

30
00:01:35,930 --> 00:01:33,659
remote sensing learning these advances

31
00:01:38,620 --> 00:01:35,940
the national condom Forest Service drug

32
00:01:41,630 --> 00:01:38,630
passenger dynamos

33
00:01:43,780 --> 00:01:41,640
eames agreed to fly two of its aerial

34
00:01:47,919 --> 00:01:43,790
observatories

35
00:01:51,020 --> 00:01:47,929
both give a big picture view of can

36
00:01:53,420 --> 00:01:51,030
fire fighting strategists aboard NASA's

37
00:01:55,149 --> 00:01:53,430
c-130

38
00:01:58,970 --> 00:01:55,159

made on the spot a value

39
00:02:02,300 --> 00:01:58,980
masses of the observatory

40
00:02:05,120 --> 00:02:02,310
space it was able to accomplish infrared

41
00:02:08,210 --> 00:02:05,130
remote sensing of the parks 4,000 square

42
00:02:10,580 --> 00:02:08,220
miles in about two hours simultaneously

43
00:02:13,400 --> 00:02:10,590
transmitting all this data to scientists

44
00:02:15,290 --> 00:02:13,410
on the ground in West Yellowstone within

45
00:02:18,530 --> 00:02:15,300
hours maps were generated for

46
00:02:20,450 --> 00:02:18,540
firefighters be upon all these systems

47
00:02:23,180 --> 00:02:20,460
were only flown a few times over

48
00:02:26,390 --> 00:02:23,190
Yellowstone the technology proved it

49
00:02:28,370 --> 00:02:26,400
could help NASA Ames data endless jeff

50
00:02:31,430 --> 00:02:28,380
meyers I think our first flight on

51
00:02:33,530 --> 00:02:31,440
September second we found six or seven

52
00:02:37,850 --> 00:02:33,540
large fires and remote areas that they

53
00:02:42,430 --> 00:02:37,860
were not aware of the remote sensing

54
00:02:45,140 --> 00:02:42,440
capabilities of the er-2 were also used

55
00:02:49,100 --> 00:02:45,150
face blazing walls of fire

56
00:02:51,470 --> 00:02:49,110
repeat I this is the visible red green

57
00:02:53,809 --> 00:02:51,480
and blue channels put together which

58
00:02:56,630 --> 00:02:53,819
gives us natural color as the human eye

59
00:02:59,000 --> 00:02:56,640
would see it it's not possible to see

60
00:03:01,580 --> 00:02:59,010
flames or fire fronts on this from this

61
00:03:04,039 --> 00:03:01,590
altitude and with a heavy smoke on the

62
00:03:06,429 --> 00:03:04,049
ground so it is necessary to go to the

63
00:03:09,199 --> 00:03:06,439

infrared to see what's actively burning

64
00:03:12,830 --> 00:03:09,209
the fire front comes immediately

65
00:03:15,860 --> 00:03:12,840
apparent the yellow and orange areas are

66
00:03:18,440 --> 00:03:15,870
what is already burned these the

67
00:03:21,680 --> 00:03:18,450
purplish appearing areas dense lodgepole

68
00:03:23,449 --> 00:03:21,690
pine as yet to burn you can see how the

69
00:03:25,970 --> 00:03:23,459
fire has been carried by the wind

70
00:03:27,470 --> 00:03:25,980
direction through these two corridors on

71
00:03:30,320 --> 00:03:27,480
either side of the Old Faithful

72
00:03:35,390 --> 00:03:33,560
finding new ways to monitor fires and

73
00:03:38,900 --> 00:03:35,400
study their influence on global climate'

74
00:03:42,140 --> 00:03:38,910
is a NASA goal and saving protected

75
00:03:44,870 --> 00:03:42,150
lands a vital by-product nasa's earth

76
00:03:47,320 --> 00:03:44,880
resources aircraft and advanced remote

77
00:03:49,510 --> 00:03:47,330
sensing