
Oct 06 2021
Lake Tahoe
South Lake Tahoe
Eldorado National Forest
Pollock Pines
Grizzly Flats
Somerset
miles
1
3
5
0
2
4
6
kilometers
km²
Area
1000
900
800
700
600
500
400
300
200
100
1
26
52
Days

1
00:00:09,750 --> 00:00:07,670
you're looking at the caldor fire which

2
00:00:12,230 --> 00:00:09,760
broke out just south of grizzly flats

3
00:00:15,350 --> 00:00:12,240
california and burned from august 15th

4
00:00:16,870 --> 00:00:15,360
to october 6 2021.

5
00:00:19,109 --> 00:00:16,880
with upwards of two dozen earth

6
00:00:21,349 --> 00:00:19,119
observing satellites detecting and

7
00:00:22,950 --> 00:00:21,359
tracking fires is an important part of

8
00:00:25,029 --> 00:00:22,960
nasa's purview

9
00:00:27,589 --> 00:00:25,039
but this visualization gives us a

10
00:00:29,589 --> 00:00:27,599
detailed look at the past

11
00:00:31,830 --> 00:00:29,599
nasa's latest generation of fire

12
00:00:33,830 --> 00:00:31,840
tracking satellites observes the entire

13
00:00:35,910 --> 00:00:33,840

planet twice per day

14
00:00:38,150 --> 00:00:35,920
scientists use the thermal infrared

15
00:00:40,310 --> 00:00:38,160
images from each overpass to identify

16
00:00:43,670 --> 00:00:40,320
the active firefront as well as track

17
00:00:45,190 --> 00:00:43,680
the behavior of large fires

18
00:00:47,590 --> 00:00:45,200
it's really important for us to be able

19
00:00:49,910 --> 00:00:47,600
to track fires as they change over time

20
00:00:51,750 --> 00:00:49,920
because the rate of spread the intensity

21
00:00:53,990 --> 00:00:51,760
and the total area that burns all

22
00:00:57,270 --> 00:00:54,000
contribute to the impact from fires on

23
00:00:58,869 --> 00:00:57,280
ecosystems communities air quality and

24
00:01:00,630 --> 00:00:58,879
greenhouse gas concentrations in the

25
00:01:02,790 --> 00:01:00,640
atmosphere

26
00:01:04,630 --> 00:01:02,800
the yellow outlines you see represent

27
00:01:06,310 --> 00:01:04,640
the active fire lines

28
00:01:08,390 --> 00:01:06,320
where the brightest shade of yellow

29
00:01:10,950 --> 00:01:08,400
shows the location of the current active

30
00:01:13,030 --> 00:01:10,960
fire lines the gold lines show the

31
00:01:17,270 --> 00:01:13,040
position of the fire lines as they were

32
00:01:19,510 --> 00:01:17,280
12 24 and 36 hours earlier

33
00:01:21,749 --> 00:01:19,520
the red dots indicate active fire

34
00:01:27,190 --> 00:01:21,759
detections and the gray sections

35
00:01:31,830 --> 00:01:29,030
the caldor fire started in the middle of

36
00:01:34,069 --> 00:01:31,840
august and burned for almost eight weeks

37
00:01:36,550 --> 00:01:34,079
but we know that most of the expansion

38
00:01:38,710 --> 00:01:36,560

happened in just the first two weeks

39
00:01:40,230 --> 00:01:38,720
after which point most of the active

40
00:01:41,830 --> 00:01:40,240
fire detections were not at the

41
00:01:44,069 --> 00:01:41,840
perimeter of the fire as expanding

42
00:01:46,149 --> 00:01:44,079
firefronts but actually within the

43
00:01:50,630 --> 00:01:46,159
perimeter showing areas where there was

44
00:01:55,590 --> 00:01:52,789
the latest generation of satellites are

45
00:01:57,190 --> 00:01:55,600
a partnership between nasa and noaa

46
00:01:58,789 --> 00:01:57,200
these new instruments have higher

47
00:02:01,910 --> 00:01:58,799
spatial resolution that helps them

48
00:02:03,910 --> 00:02:01,920
better detect fires

49
00:02:05,990 --> 00:02:03,920
this also allows scientists to better

50
00:02:08,309 --> 00:02:06,000
locate the areas of actively burning

51
00:02:10,710 --> 00:02:08,319
fire and to be more sensitive to areas

52
00:02:12,630 --> 00:02:10,720
of smaller fire activity including some

53
00:02:14,470 --> 00:02:12,640
of the smoldering fire activity that

54
00:02:17,790 --> 00:02:14,480
would not have been detected by previous

55
00:02:21,190 --> 00:02:17,800
satellites from nasa or other agencies

56
00:02:24,229 --> 00:02:21,200
[Music]

57
00:02:28,150 --> 00:02:24,239
here we can see the dixie fire located

58
00:02:32,470 --> 00:02:30,390
better geolocation also allows

59
00:02:34,309 --> 00:02:32,480
scientists and fire managers to be more

60
00:02:36,880 --> 00:02:34,319
confident about where the fire is

61
00:02:38,390 --> 00:02:36,890
actually located on the ground

62
00:02:40,630 --> 00:02:38,400
[Music]

63
00:02:42,710 --> 00:02:40,640

overall the goal for our team is to be

64
00:02:44,790 --> 00:02:42,720
able to deliver active fire detection

65
00:02:47,110 --> 00:02:44,800
and tracking information in a way that

66
00:02:48,830 --> 00:02:47,120
helps link nasa's satellite capabilities

67
00:02:51,350 --> 00:02:48,840
with the needs of stakeholders on the

68
00:02:53,990 --> 00:02:51,360
ground these stakeholders include fire

69
00:02:55,270 --> 00:02:54,000
managers who track and respond to fires

70
00:02:57,270 --> 00:02:55,280
in real time

71
00:02:59,589 --> 00:02:57,280
and air quality managers responsible for

72
00:03:01,910 --> 00:02:59,599
forecasting and reporting how fire

73
00:03:04,149 --> 00:03:01,920
emissions create unhealthy air quality

74
00:03:06,390 --> 00:03:04,159
for communities downwind from large fire

75
00:03:09,509 --> 00:03:06,400
events

76
00:03:11,750 --> 00:03:09,519
these data also help support new science

77
00:03:13,750 --> 00:03:11,760
by tracking the fire every 12 hours we

78
00:03:15,910 --> 00:03:13,760
can better pinpoint the conditions under

79
00:03:18,149 --> 00:03:15,920
which dangerous fires could occur

80
00:03:21,110 --> 00:03:18,159
and better anticipate the likely impact