1
00:00:05,990 --> 00:00:03,669
now and then an obscure star briefly

2
00:00:07,030 --> 00:00:06,000
flares up brightening up to a million

3
00:00:09,990 --> 00:00:07,040
times

4
00:00:13,589 --> 00:00:10,000
it's an event called a nova

5
00:00:16,790 --> 00:00:13,599
the star v906 karani erupted as anova in

6
00:00:19,830 --> 00:00:16,800
2018. observations from three satellites

7
00:00:22,230 --> 00:00:19,840
provide new insights into what happened

8
00:00:24,070 --> 00:00:22,240
nasa's fermi mission has seen 14 novi

9
00:00:26,230 --> 00:00:24,080
since 2010.

10
00:00:28,150 --> 00:00:26,240
before then astronomers didn't think

11
00:00:30,470 --> 00:00:28,160
novae could glow in gamma rays the

12
00:00:32,389 --> 00:00:30,480
highest energy light

13
00:00:34,709 --> 00:00:32,399

when a white dwarf pulls material from a

14
00:00:36,870 --> 00:00:34,719
companion star the gas forms a

15
00:00:39,110 --> 00:00:36,880
thickening layer that eventually erupts

16
00:00:41,110 --> 00:00:39,120
in a thermonuclear fireball

17
00:00:42,790 --> 00:00:41,120
a nova is born

18
00:00:45,750 --> 00:00:42,800
led by a team from michigan state

19
00:00:48,709 --> 00:00:45,760
university astronomers studied v906

20
00:00:51,430 --> 00:00:48,719
karani using high energy data from fermi

21
00:00:53,510 --> 00:00:51,440
nasa's nustar x-ray telescope

22
00:00:55,990 --> 00:00:53,520
and invisible light from a canadian

23
00:00:57,590 --> 00:00:56,000
satellite named bright toronto

24
00:01:00,549 --> 00:00:57,600
shaped by the orbital motion of the

25
00:01:03,430 --> 00:01:00,559
stars the explosion debris first forms a

26
00:01:04,310 --> 00:01:03,440
thick expanding ring around the system

27
00:01:06,310 --> 00:01:04,320
then

28
00:01:09,030 --> 00:01:06,320
after 10 days or so

29
00:01:11,270 --> 00:01:09,040
fast outflows likely driven by residual

30
00:01:13,590 --> 00:01:11,280
fusion on the white dwarf strike the

31
00:01:15,910 --> 00:01:13,600
ring the resulting shock waves produce

32
00:01:19,350 --> 00:01:15,920
gamma-ray and optical flares that

33
00:01:21,670 --> 00:01:19,360
radiate away most of the novus energy

34
00:01:23,910 --> 00:01:21,680
these observations provide the first

35
00:01:25,270 --> 00:01:23,920
direct evidence that shockwaves can

36
00:01:28,230 --> 00:01:25,280
power most of

37
00:01:29,910 --> 00:01:28,240
explosion's visible light

38
00:01:32,149 --> 00:01:29,920

figuring out how they work in nearby

39
00:01:34,469 --> 00:01:32,159
novi will help us understand more