
GRB

1
00:00:08,750 --> 00:00:05,930
looking for a new vacation spot

2
00:00:12,910 --> 00:00:08,760
I've heard that gamma-ray bursts are

3
00:00:20,870 --> 00:00:16,609
no oh no no no no no no no I I was just

4
00:00:26,330 --> 00:00:20,880
no no they're far too dangerous

5
00:00:32,650 --> 00:00:29,210
so you're really going to go

6
00:00:38,330 --> 00:00:32,660
then you need to know a few things first

7
00:00:40,790 --> 00:00:38,340
a gamma-ray burst is a giant burrs

8
00:00:43,729 --> 00:00:40,800
of gamma rays

9
00:00:45,830 --> 00:00:43,739
the highest energy form of life they

10
00:00:48,830 --> 00:00:45,840
mostly come from either two neutron

11
00:00:51,830 --> 00:00:48,840
stars crashing together or a massive

12
00:00:54,110 --> 00:00:51,840
star collapsing in on itself both likely

13
00:00:56,750 --> 00:00:54,120

form black holes that blast out a pair

14
00:01:00,170 --> 00:00:56,760
of cones of super fast super hot

15
00:01:03,049 --> 00:01:00,180
material these Jets emit the gamma rays

16
00:01:05,270 --> 00:01:03,059
that give gamma-ray bursts their name

17
00:01:08,630 --> 00:01:05,280
if you're in the path of that cone even

18
00:01:12,469 --> 00:01:08,640
very very far away you see a gamma ray

19
00:01:16,670 --> 00:01:12,479
burst not in the cone no gamma-ray burst

20
00:01:19,250 --> 00:01:16,680
but the show isn't over yet as that cone

21
00:01:21,770 --> 00:01:19,260
Rams into the stuff around it there's

22
00:01:25,670 --> 00:01:21,780
another display across the whole range

23
00:01:28,310 --> 00:01:25,680
of light from radio waves to gamma rays

24
00:01:30,890 --> 00:01:28,320
well then there's other possible light

25
00:01:33,289 --> 00:01:30,900
shows too the the Supernova from the

26
00:01:35,929 --> 00:01:33,299
collapsing star or the kill Anova from

27
00:01:37,490 --> 00:01:35,939
the murderer you get the idea it's a

28
00:01:40,190 --> 00:01:37,500
brilliant display

29
00:01:43,310 --> 00:01:40,200
now gamma ray bursts may be the greatest

30
00:01:46,870 --> 00:01:43,320
show in town but knowing when and where

31
00:01:49,510 --> 00:01:46,880
to look can be tricky over at Earth

32
00:01:51,889 --> 00:01:49,520
they're also known as

33
00:01:54,469 --> 00:01:51,899
glarbacks209d depending on where you're

34
00:01:56,870 --> 00:01:54,479
from gamma ray detectors monitor the

35
00:01:59,030 --> 00:01:56,880
whole Sky to find these unpredictable

36
00:02:01,910 --> 00:01:59,040
events but if you want to visit one

37
00:02:04,190 --> 00:02:01,920
you'll need to find it before that blast

38
00:02:06,649 --> 00:02:04,200

of gamma rays first you mean to decide

39
00:02:08,870 --> 00:02:06,659
which type you want to see the initial

40
00:02:11,510 --> 00:02:08,880
burst from the crashing Stars last is

41
00:02:13,670 --> 00:02:11,520
just a couple of seconds or less while

42
00:02:15,170 --> 00:02:13,680
the collapsing star can have a burst

43
00:02:17,990 --> 00:02:15,180
lasting minutes

44
00:02:20,630 --> 00:02:18,000
but timing your visit to the collapsing

45
00:02:24,110 --> 00:02:20,640
star might be a problem unless you're

46
00:02:25,850 --> 00:02:24,120
willing to wait the long time like

47
00:02:28,130 --> 00:02:25,860
really long

48
00:02:31,550 --> 00:02:28,140
we know of quite a few stars that could

49
00:02:35,990 --> 00:02:31,560
collapse soon but that could mean a day

50
00:02:38,390 --> 00:02:36,000
like year a million years or more

51
00:02:40,010 --> 00:02:38,400
predicting when the stars will crash is

52
00:02:41,750 --> 00:02:40,020
a bit easier if you're willing to do a

53
00:02:43,850 --> 00:02:41,760
little homework

54
00:02:46,550 --> 00:02:43,860
just find a close pair of orbiting

55
00:02:48,890 --> 00:02:46,560
neutron stars watch them for a few

56
00:02:51,290 --> 00:02:48,900
orbits add some math and you can predict

57
00:02:54,229 --> 00:02:51,300
when they'll crash

58
00:02:56,150 --> 00:02:54,239
now before you run off make sure you

59
00:02:59,150 --> 00:02:56,160
have what you need to keep yourself from

60
00:03:03,530 --> 00:02:59,160
getting blasted by those gamma rays

61
00:03:05,449 --> 00:03:03,540
fur the glarback's 29d has an atmosphere

62
00:03:08,270 --> 00:03:05,459
that Shields the planet and its

63
00:03:10,490 --> 00:03:08,280

inhabitants from gamma rays

64
00:03:12,649 --> 00:03:10,500
and you'll need to be able to detect

65
00:03:15,309 --> 00:03:12,659
light in all its forms if you want to

66
00:03:17,750 --> 00:03:15,319
see the full show

67
00:03:20,330 --> 00:03:17,760
of course all of this doesn't account

68
00:03:24,170 --> 00:03:20,340
for the fact that gamma-ray bursts don't

69
00:03:26,809 --> 00:03:24,180
happen nearby the closest so far is over

70
00:03:28,490 --> 00:03:26,819
a hundred million light years away and

71
00:03:30,770 --> 00:03:28,500
most are billions

72
00:03:32,809 --> 00:03:30,780
so you'll need to find a Galaxy where

73
00:03:34,850 --> 00:03:32,819
this is more likely

74
00:03:45,170 --> 00:03:34,860
but it looks like you've worked all of