1
00:00:07,059 --> 00:00:05,350
on october sixth 2008 we discovered a

2
00:00:09,010 --> 00:00:07,069
near-earth asteroid about the size of a

3
00:00:12,810 --> 00:00:09,020
Volkswagen and we determined that it

4
00:00:15,790 --> 00:00:12,820
would hit the Earth's atmosphere at 746

5
00:00:19,840 --> 00:00:15,800
pacific daylight time over the northern

6
00:00:23,130 --> 00:00:19,850
sudan region of northern africa and at

7
00:00:25,840 --> 00:00:23,140
that location of course it would be for

8
00:00:29,410 --> 00:00:25,850
46 in the morning in the pre-dawn sky

9
00:00:30,970 --> 00:00:29,420
well it was discovered the way these

10
00:00:34,720 --> 00:00:30,980
near Earth objects are always discovered

11
00:00:37,569 --> 00:00:34,730
we take a CCD image just like you would

12
00:00:40,090 --> 00:00:37,579
with the your camera of a certain region

13
00:00:41,919 --> 00:00:40,100

of the sky come back to that region 15

14
00:00:43,479 --> 00:00:41,929
minutes later take another image come

15
00:00:45,369 --> 00:00:43,489
back to that same region 15 minutes

16
00:00:47,770 --> 00:00:45,379
later take a third or fourth image and

17
00:00:50,200 --> 00:00:47,780
then we compare the images to see if any

18
00:00:52,239 --> 00:00:50,210
of the objects in those images have

19
00:00:54,340 --> 00:00:52,249
moved and if they have there almost

20
00:00:58,049 --> 00:00:54,350
certainly near-earth objects these

21
00:01:00,250 --> 00:00:58,059
objects are tiny and they're dark and

22
00:01:02,829 --> 00:01:00,260
because they're tiny and dark they're

23
00:01:04,060 --> 00:01:02,839
very very faint and we can only discover

24
00:01:05,680 --> 00:01:04,070
them when they're fairly close to the

25
00:01:07,779 --> 00:01:05,690
earth when they're not nearly as faint

26
00:01:09,639 --> 00:01:07,789
as they usually are so when they get

27
00:01:11,770 --> 00:01:09,649
close to the earth they're easy as to

28
00:01:14,020 --> 00:01:11,780
discover their motions on the sky our

29
00:01:15,490 --> 00:01:14,030
fastest and so that's the time when we

30
00:01:16,660 --> 00:01:15,500
typically discovered near Earth objects

31
00:01:19,359 --> 00:01:16,670
when they're fairly close to the earth

32
00:01:21,190 --> 00:01:19,369
why are we so confident this object the

33
00:01:22,810 --> 00:01:21,200
size of a Volkswagen is not going to

34
00:01:25,569 --> 00:01:22,820
punch through the atmosphere and hit the

35
00:01:29,050 --> 00:01:25,579
ground well what happens is that most of

36
00:01:31,090 --> 00:01:29,060
these objects are stony objects and what

37
00:01:33,940 --> 00:01:31,100
happens when they reach about 30 miles

38
00:01:35,560 --> 00:01:33,950

into the atmosphere coming down the

39
00:01:36,910 --> 00:01:35,570
pressure on the front side of that stony

40
00:01:38,380 --> 00:01:36,920
object is so much greater than the

41
00:01:41,560 --> 00:01:38,390
pressure on the backside that they

42
00:01:43,389 --> 00:01:41,570
pancake and fragment and dissipate into

43
00:01:45,669 --> 00:01:43,399
the Earth's atmosphere and so what

44
00:01:48,300 --> 00:01:45,679
you've what you see is a fireball event

45
00:01:51,130 --> 00:01:48,310
or a bolide event and this this object

46
00:01:53,499 --> 00:01:51,140
fragments into bazillion pieces and then

47
00:01:54,969 --> 00:01:53,509
simply dissipates or burns up in the

48
00:01:56,590 --> 00:01:54,979
Earth's atmosphere without any of the

49
00:01:59,139 --> 00:01:56,600
fragments reaching the ground well this

50
00:02:02,230 --> 00:01:59,149
is a discovery that's big on a number of

51
00:02:04,870 --> 00:02:02,240
points first of all it's a it's a

52
00:02:06,789 --> 00:02:04,880
prediction of a very bright fireball

53
00:02:08,410 --> 00:02:06,799
event so people can go out there and set

54
00:02:11,020 --> 00:02:08,420
up their equipment and get ready for it

55
00:02:13,540 --> 00:02:11,030
whereas usually a fireball is observed

56
00:02:15,309 --> 00:02:13,550
by people who just certain dip initially

57
00:02:17,319 --> 00:02:15,319
are looking up at the right time so

58
00:02:19,390 --> 00:02:17,329
now we have a prediction suggesting one

59
00:02:22,629 --> 00:02:19,400
and this will occur so this suggests

60
00:02:25,539 --> 00:02:22,639
that the telescopic surveys that nASA

61
00:02:27,489 --> 00:02:25,549
has in place the orbit computation and

62
00:02:29,800 --> 00:02:27,499
impact probability calculations that

63
00:02:31,390 --> 00:02:29,810

NASA now has in place are working rather

64
00:02:34,330 --> 00:02:31,400
well because we were able to discover

65
00:02:36,190 --> 00:02:34,340
and predict exactly where this object

66
00:02:38,410 --> 00:02:36,200
would hit in a matter of a couple of

67
00:02:41,080 --> 00:02:38,420
hours and get it out on the web to the

68
00:02:43,390 --> 00:02:41,090
folks who need to know so I'm I'm

69
00:02:46,899 --> 00:02:43,400
pleased that the system is working so

70
00:02:49,479 --> 00:02:46,909
well it just shows that NASA's ability

71
00:02:51,039 --> 00:02:49,489
to track to discover and track these