
Illustration

1
00:00:00,934 --> 00:00:02,635
First Interstellar Asteroid
Wows Scientists

2
00:00:02,668 --> 00:00:05,471
[Music]

3
00:00:05,504 --> 00:00:07,440
Asteroid 1I/2017 U1 was
discovered Oct 19 by the

4
00:00:07,473 --> 00:00:11,477
NASA-funded Pan-STARRS1
telescope in Hawaii.

5
00:00:11,510 --> 00:00:13,846
From its trajectory and
speed, scientists determined

6
00:00:13,879 --> 00:00:17,750
it came from outside
our solar system.

7
00:00:17,783 --> 00:00:21,220
It was a special day when this
object was first discovered.

8
00:00:21,253 --> 00:00:23,890
We had been waiting
for the discovery

9
00:00:23,923 --> 00:00:26,959
of an interstellar object
for decades basically.

10
00:00:26,992 --> 00:00:29,195
When I first heard about
this interstellar object

11

00:00:29,228 --> 00:00:31,964
it was very exciting from a
scientific point of view that

12
00:00:31,997 --> 00:00:36,869
finally there has been an actual
observation of such an object.

13
00:00:36,902 --> 00:00:41,707
This object is simply a
piece of another solar system

14
00:00:41,740 --> 00:00:44,377
that was expelled and it has
been traveling through

15
00:00:44,410 --> 00:00:47,814
interstellar space for -
hundreds of millions of years,

16
00:00:47,847 --> 00:00:48,648
billions of years?

17
00:00:48,681 --> 00:00:49,482
We dont know.

18
00:00:49,515 --> 00:00:52,452
A number of our
survey projects and

19
00:00:52,485 --> 00:00:55,555
other observatories immediately
turned their telescopes

20
00:00:55,588 --> 00:00:58,658
to take observations
of this object.

21
00:00:58,691 --> 00:01:00,726
Additional observations

reveal the

22
00:01:00,759 --> 00:01:03,463
asteroid has an
unusual shape.

23
00:01:03,496 --> 00:01:05,665
[Johnson] From the observations
we have so far,

24
00:01:05,698 --> 00:01:09,035
it looks like it's a very
elongated object.

25
00:01:09,068 --> 00:01:11,737
Maybe about 1/4
mile in length.

26
00:01:11,770 --> 00:01:15,675
[Chodas] We think this object,
2017 U1 is very long, perhaps

27
00:01:15,708 --> 00:01:19,412
400 meters or so long, and very
narrow, skinny, perhaps maybe

28
00:01:19,445 --> 00:01:22,081
40 meters or so in
the other dimensions.

29
00:01:22,114 --> 00:01:24,016
That's a very unusual shape.

30
00:01:24,049 --> 00:01:25,852
We dont see that in
our solar system.

31
00:01:25,885 --> 00:01:28,621
None of the asteroids in our
solar system look like that.

32
00:01:28,654 --> 00:01:32,391
So its very puzzling how it
could have obtained this shape.

33
00:01:32,424 --> 00:01:36,929
We also see that it's
very reddish in color

34
00:01:36,962 --> 00:01:42,335
which indicates it's been
possibly in space a long time

35
00:01:42,368 --> 00:01:47,140
and irradiated by not only
the light from our Sun

36
00:01:47,173 --> 00:01:49,008
but other suns as well.

37
00:01:49,041 --> 00:01:50,743
There's still quite a bit
to learn about this

38
00:01:50,776 --> 00:01:53,779
interstellar object, in
limited time because

39
00:01:53,812 --> 00:01:56,315
it's on its way out of
the solar system.

40
00:01:56,348 --> 00:01:57,650
[Johnson] It's fading very fast.

41
00:01:57,683 --> 00:02:00,586
It's a relatively small
object so it's very dim.

42

00:02:00,619 --> 00:02:04,056
But we are continuing to try to
use NASA assets like the

43
00:02:04,089 --> 00:02:07,527
Hubble Space Telescope and
Spitzer to take observations

44
00:02:07,560 --> 00:02:11,697
to determine more about its
size and composition.

45
00:02:11,730 --> 00:02:14,200
The asteroid, named 'Oumuamua
by discoverers,

46
00:02:14,233 --> 00:02:17,003
poses no risk as it exits
the solar system.

47
00:02:17,036 --> 00:02:20,940
Of Hawaiian origin, the
name 'Oumuamua means

48
00:02:20,973 --> 00:02:23,142
messenger from afar
arriving first.

49
00:02:23,175 --> 00:02:25,645
NASA's planetary defense
coordination office

50
00:02:25,678 --> 00:02:29,348
has a near Earth object
observations program

51
00:02:29,381 --> 00:02:32,151
which funds efforts that
survey the skies

52

00:02:32,184 --> 00:02:35,154
to look for near-Earth
asteroids and

53
00:02:35,187 --> 00:02:38,257
to calculate their orbits and
their trajectories and to

54
00:02:38,290 --> 00:02:41,260
determine if any of them might
pose a hazard to Earth.

55
00:02:41,293 --> 00:02:44,263
And as part of doing that,
some amazing discoveries can

56
00:02:44,296 --> 00:02:47,200
happen and the discovery of
this interstellar object

57
00:02:47,233 --> 00:02:48,401
was one of them.

58
00:02:48,434 --> 00:02:51,571
As our observational
capabilities improve

59
00:02:51,604 --> 00:02:54,273
-- PanSTARRS has been getting
better, other surveys

60
00:02:54,306 --> 00:02:55,675
have been getting better--

61
00:02:55,708 --> 00:02:59,312
there are new generation
surveys that will come on line

62
00:02:59,345 --> 00:03:02,815
--we will be detecting more

of these in the future.

63
00:03:02,848 --> 00:03:03,783
Pan-STARRS is operated by: The
University of Hawaii Institute

64
00:03:03,816 --> 00:03:05,017
for Astronomy and funded by

65
00:03:05,050 --> 00:03:06,352
NASAs Near-Earth Object
Observations Program

66
00:03:06,385 --> 00:03:07,720
Additional observations and
data provided by:

67
00:03:07,753 --> 00:03:09,055
European Southern Observatory
(ESO)

68
00:03:09,088 --> 00:03:10,389
Canada-France-Hawaii Telescope
(CFHT), UKIRT,

69
00:03:10,422 --> 00:03:11,490
Gemini South Telescope, W. M.

70
00:03:11,523 --> 00:03:12,458
Keck Observatory and others

71
00:03:12,491 --> 00:03:13,726
Asteroid animation and
graphic provided by