
NASA
Hubble's 32nd Anniversary:
An Eclectic Galaxy Grouping

1
00:00:05,430 --> 00:00:03,030
[Music]

2
00:00:08,310 --> 00:00:05,440
nasa is celebrating the hubble space

3
00:00:11,110 --> 00:00:08,320
telescope's 32nd birthday with a

4
00:00:13,430 --> 00:00:11,120
stunning look at five galaxies a

5
00:00:15,829 --> 00:00:13,440
close-knit collection called the hixon

6
00:00:18,550 --> 00:00:15,839
compact group 40.

7
00:00:21,429 --> 00:00:18,560
this amazing assembly includes a giant

8
00:00:24,310 --> 00:00:21,439
elliptical galaxy glowing with blended

9
00:00:27,029 --> 00:00:24,320
light from billions of stars

10
00:00:29,750 --> 00:00:27,039
several spiral galaxies show prominent

11
00:00:32,950 --> 00:00:29,760
dusty lanes that outline their winding

12
00:00:34,630 --> 00:00:32,960
spiral arms regions where star formation

13
00:00:37,990 --> 00:00:34,640

is active

14
00:00:40,470 --> 00:00:38,000
we see one galaxy oriented edge on

15
00:00:43,270 --> 00:00:40,480
showing off its prominent dust along its

16
00:00:45,750 --> 00:00:43,280
flattened starry disk

17
00:00:48,709 --> 00:00:45,760
this eclectic group of galaxies is held

18
00:00:50,709 --> 00:00:48,719
together in a gravitational dance

19
00:00:53,029 --> 00:00:50,719
the group is so crowded that it could

20
00:00:56,869 --> 00:00:53,039
fit within a space less than twice the

21
00:00:59,270 --> 00:00:56,879
span of our own milky way galaxy's disk

22
00:01:02,150 --> 00:00:59,280
a mysterious and invisible form of

23
00:01:04,390 --> 00:01:02,160
matter called dark matter may explain

24
00:01:06,630 --> 00:01:04,400
this tightly bound group

25
00:01:09,350 --> 00:01:06,640
when galaxies with a lot of dark matter

26
00:01:12,710 --> 00:01:09,360
come close together that dark matter can

27
00:01:15,109 --> 00:01:12,720
form a big cloud around the entire group

28
00:01:18,230 --> 00:01:15,119
as the galaxies plow through this cloud

29
00:01:20,469 --> 00:01:18,240
of dark matter its gravitational effects

30
00:01:21,749 --> 00:01:20,479
act like a frictional force that slows

31
00:01:24,310 --> 00:01:21,759
their motion

32
00:01:26,390 --> 00:01:24,320
causing the galaxies to lose energy and

33
00:01:28,870 --> 00:01:26,400
fall together

34
00:01:31,749 --> 00:01:28,880
this snapshot catches the galaxies at a

35
00:01:33,830 --> 00:01:31,759
very special moment in their lifetimes

36
00:01:36,710 --> 00:01:33,840
in about one billion years they will

37
00:01:40,230 --> 00:01:36,720
eventually collide and merge to form one

38
00:01:42,550 --> 00:01:40,240

giant elliptical galaxy

39
00:01:44,870 --> 00:01:42,560
hubble's incredible sensitivity also

40
00:01:46,870 --> 00:01:44,880
picks up a diverse collection of more

41
00:01:49,190 --> 00:01:46,880
distant galaxies glowing in the

42
00:01:51,510 --> 00:01:49,200
background

43
00:01:54,230 --> 00:01:51,520
because hubble orbits above earth's

44
00:01:56,149 --> 00:01:54,240
atmosphere it can give us these clear

45
00:01:57,830 --> 00:01:56,159
views of the many wonders in our

46
00:02:00,630 --> 00:01:57,840
universe

47
00:02:03,030 --> 00:02:00,640
for 32 years the hubble space telescope

48
00:02:05,590 --> 00:02:03,040
has changed the way we think of space

49
00:02:07,830 --> 00:02:05,600
and our place in the cosmos

50
00:02:10,309 --> 00:02:07,840
hubble has refined our understanding of

51
00:02:11,990 --> 00:02:10,319
the age of the universe and its rate of

52
00:02:14,229 --> 00:02:12,000
expansion

53
00:02:16,710 --> 00:02:14,239
its deep field images have made it

54
00:02:18,070 --> 00:02:16,720
possible for us to see across billions

55
00:02:20,949 --> 00:02:18,080
of light years

56
00:02:22,949 --> 00:02:20,959
revealing ancient adolescent galaxies

57
00:02:24,630 --> 00:02:22,959
that we can compare with our own milky

58
00:02:26,869 --> 00:02:24,640
way

59
00:02:29,190 --> 00:02:26,879
hubble remains in good health and is

60
00:02:32,229 --> 00:02:29,200
expected to continue its exploration of

61
00:02:35,190 --> 00:02:32,239
the universe for years to come

62
00:02:37,110 --> 00:02:35,200
five astronaut servicing missions along

63
00:02:39,509 --> 00:02:37,120

with an expert technical team on the

64
00:02:42,949 --> 00:02:39,519
ground have kept the telescope at the

65
00:02:44,869 --> 00:02:42,959
peak of its scientific capabilities

66
00:02:48,949 --> 00:02:44,879
you can find out more about the hubble

67
00:02:52,150 --> 00:02:48,959
space telescope at our website nasa.gov

68
00:02:53,820 --> 00:02:52,160
hubble and on social media at nasa