1
00:00:07,269 --> 00:00:04,630
astronomers have pushed nasa's hubble

2
00:00:09,669 --> 00:00:07,279
space telescope to its limits by finding

3
00:00:12,709 --> 00:00:09,679
what they believe is the most distant

4
00:00:16,470 --> 00:00:12,719
ancient object ever seen in the universe

5
00:00:19,830 --> 00:00:16,480
its light traveled 13.2 billion years to

6
00:00:22,950 --> 00:00:19,840
reach hubble roughly 150 million years

7
00:00:26,310 --> 00:00:22,960
longer than the previous record holder

8
00:00:27,589 --> 00:00:26,320
the age of the universe is 13.7 billion

9
00:00:33,670 --> 00:00:27,599
years

10
00:00:39,590 --> 00:00:36,310
is a compact galaxy of blue stars that

11
00:00:42,470 --> 00:00:39,600
existed 480 million years after the big

12
00:00:46,549 --> 00:00:42,480
bang only four percent of the universe's

13
00:00:48,869 --> 00:00:46,559

current age it's tiny over 100 such many

14
00:00:55,590 --> 00:00:48,879
galaxies would be needed to make up our

15
00:00:59,349 --> 00:00:57,270
two years ago a

16
00:01:01,270 --> 00:00:59,359
powerful new camera was put on hubble

17
00:01:03,270 --> 00:01:01,280
and a camera which worked in the

18
00:01:05,750 --> 00:01:03,280
infrared which we had never really had

19
00:01:08,310 --> 00:01:05,760
good capability before and we've now

20
00:01:09,590 --> 00:01:08,320
taken the deepest image of the universe

21
00:01:11,750 --> 00:01:09,600
ever

22
00:01:14,149 --> 00:01:11,760
using this camera in the infrared we're

23
00:01:15,510 --> 00:01:14,159
looking back through 96 of the life of

24
00:01:16,469 --> 00:01:15,520
the universe

25
00:01:19,109 --> 00:01:16,479
and

26
00:01:21,109 --> 00:01:19,119
in so doing we have found just one

27
00:01:23,749 --> 00:01:21,119
galaxy but it is one and it is a

28
00:01:26,230 --> 00:01:23,759
remarkable object the universe was only

29
00:01:29,590 --> 00:01:26,240
500 million years old at that time

30
00:01:31,990 --> 00:01:29,600
versus it now being 13 700 million years

31
00:01:33,830 --> 00:01:32,000
old the image that we've taken with

32
00:01:36,870 --> 00:01:33,840
hubble this deepest image ever of the

33
00:01:39,270 --> 00:01:36,880
universe is actually on a tiny region of

34
00:01:41,910 --> 00:01:39,280
the sky it's only about the tenth the

35
00:01:44,230 --> 00:01:41,920
size of the full moon tenth of the

36
00:01:46,469 --> 00:01:44,240
diameter of the full moon so it really

37
00:01:49,830 --> 00:01:46,479
is tiny and in that there are thousands

38
00:01:52,230 --> 00:01:49,840

and thousands of galaxies some like our

39
00:01:55,429 --> 00:01:52,240
own milky way but most a lot smaller

40
00:01:57,030 --> 00:01:55,439
than our own milky way as we look deep

41
00:02:00,709 --> 00:01:57,040
into these data

42
00:02:02,230 --> 00:02:00,719
we are going back in time through 96 of

43
00:02:04,550 --> 00:02:02,240
the life of the universe to when the

44
00:02:06,630 --> 00:02:04,560
universe was just four percent of its

45
00:02:08,469 --> 00:02:06,640
current age it's a little hard to think

46
00:02:10,949 --> 00:02:08,479
about because of the billions of years

47
00:02:13,830 --> 00:02:10,959
involved but a good analogy is think

48
00:02:15,350 --> 00:02:13,840
about a baby and how that changes so

49
00:02:17,430 --> 00:02:15,360
dramatically in the first couple of

50
00:02:19,910 --> 00:02:17,440
years we're looking back to when the

51
00:02:21,990 --> 00:02:19,920
universe was full of baby galaxies as it