What has Hubble helped to reveal about the expansion of the universe?

1
00:00:14,789 --> 00:00:12,549
one of the primary goals for the hubble

2
00:00:17,670 --> 00:00:14,799
space telescope when it was launched was

3
00:00:19,910 --> 00:00:17,680
to refine the measurement of the rate of

4
00:00:23,189 --> 00:00:19,920
the expansion of the universe and hubble

5
00:00:25,750 --> 00:00:23,199
has done that marvelously for us

6
00:00:27,509 --> 00:00:25,760
but a surprise came a few years ago

7
00:00:29,429 --> 00:00:27,519
scientists using hubble and also

8
00:00:31,910 --> 00:00:29,439
telescopes on the ground

9
00:00:35,190 --> 00:00:31,920
realize that the expansion rate of the

10
00:00:37,510 --> 00:00:35,200
universe is actually getting faster and

11
00:00:39,830 --> 00:00:37,520
as we look at very distant galaxies

12
00:00:41,830 --> 00:00:39,840
using these sensitive instruments we can

13
00:00:42,830 --> 00:00:41,840

tell that the universe expansion has not

14
00:00:45,190 --> 00:00:42,840
always been

15
00:00:48,069 --> 00:00:45,200
uniform toward the beginning of our

16
00:00:53,590 --> 00:00:48,079
universe's expansion it was decelerating

17
00:00:59,349 --> 00:00:56,790
so hubble is now being used to refine

18
00:01:02,069 --> 00:00:59,359
even further that expansion rate of the

19
00:01:04,229 --> 00:01:02,079
universe and trying to compare that to

20
00:01:05,670 --> 00:01:04,239
what might be predicted from looking at

21
00:01:07,190 --> 00:01:05,680
other measurements of the universe with

22
00:01:09,030 --> 00:01:07,200
other telescopes

23
00:01:10,469 --> 00:01:09,040
right now we're finding a discrepancy

24
00:01:12,469 --> 00:01:10,479
between what we might have expected and

25
00:01:14,950 --> 00:01:12,479
what we're actually measuring so that's

26
00:01:17,270 --> 00:01:14,960
one realm where hubble is really at the

27
00:01:19,910 --> 00:01:17,280
cutting edge of helping us understand or