



**Celebrating 20 years of the
Hubble Advanced Camera for Surveys**

1
00:00:00,390 --> 00:00:15,990

[Music]

2
00:00:19,480 --> 00:00:17,830

what do all of these stunning cosmic

3
00:00:21,429 --> 00:00:19,490

images have in common

4
00:00:23,349 --> 00:00:21,439

[Music]

5
00:00:26,310 --> 00:00:23,359

they were all photographed by the hubble

6
00:00:29,269 --> 00:00:26,320

advanced camera for surveys

7
00:00:31,269 --> 00:00:29,279

this instrument called acs for short is

8
00:00:32,709 --> 00:00:31,279

the camera that conducts surveys of the

9
00:00:34,389 --> 00:00:32,719

universe

10
00:00:35,590 --> 00:00:34,399

think about the images you've seen of

11
00:00:37,750 --> 00:00:35,600

deep space

12
00:00:41,030 --> 00:00:37,760

of brilliant clusters of stars

13
00:00:43,990 --> 00:00:41,040

vibrant nebulae and distant galaxies

14

00:00:45,990 --> 00:00:44,000

it's likely that so many of those images

15

00:00:47,830 --> 00:00:46,000

from photos you see online

16

00:00:50,310 --> 00:00:47,840

to pictures you see in your own mind

17

00:00:52,229 --> 00:00:50,320

when you think about the cosmos

18

00:00:55,510 --> 00:00:52,239

were initially captured by the hubble

19

00:00:59,990 --> 00:00:57,910

the acs is a sharper and more efficient

20

00:01:01,750 --> 00:01:00,000

camera than its predecessor

21

00:01:06,070 --> 00:01:01,760

allowing it to do more astronomical

22

00:01:11,500 --> 00:01:08,310

its now famous photos have completely

23

00:01:14,149 --> 00:01:11,510

transformed our perception of the cosmos

24

00:01:16,230 --> 00:01:14,159

[Music]

25

00:01:18,230 --> 00:01:16,240

the acs has made thousands of

26

00:01:19,910 --> 00:01:18,240

observations crucial to advancing

27

00:01:21,749 --> 00:01:19,920

astronomy

28

00:01:24,230 --> 00:01:21,759

but some of its greatest moments will

29

00:01:27,030 --> 00:01:24,240

always stand out

30

00:01:29,590 --> 00:01:27,040

the incredible resolution of the acs

31

00:01:32,149 --> 00:01:29,600

allowed astronomers to see individual

32

00:01:34,069 --> 00:01:32,159

stars in the andromeda galaxy and to

33

00:01:35,990 --> 00:01:34,079

measure their tiny motions across the

34

00:01:37,830 --> 00:01:36,000

sky

35

00:01:39,830 --> 00:01:37,840

these tiny motions

36

00:01:42,389 --> 00:01:39,840

showed that the andromeda galaxy and our

37

00:01:47,030 --> 00:01:42,399

own milky way will collide

38

00:01:51,910 --> 00:01:49,350

but the most important observation taken

39

00:01:53,590 --> 00:01:51,920

by the acs has got to be the hubble

40

00:01:59,270 --> 00:01:53,600

ultra deep field

41

00:02:01,830 --> 00:01:59,280

an unprecedented deep look at the cosmos

42

00:02:04,149 --> 00:02:01,840

revealing galaxies too small and faint

43

00:02:05,990 --> 00:02:04,159

to be seen by ground-based telescopes

44

00:02:09,109 --> 00:02:06,000

forever changing our view of the distant

45

00:02:14,150 --> 00:02:11,029

one of the most exciting things about

46

00:02:16,390 --> 00:02:14,160

the acs is that it so often reveals what

47

00:02:19,110 --> 00:02:16,400

we're not even looking for

48

00:02:22,229 --> 00:02:19,120

take the tadpole galaxy image a stunning

49

00:02:24,869 --> 00:02:22,239

view of a distorted galaxy located 420

50

00:02:26,309 --> 00:02:24,879

million light years away

51

00:02:27,990 --> 00:02:26,319

but look closer

52

00:02:30,550 --> 00:02:28,000

perhaps what's most interesting is

53

00:02:32,949 --> 00:02:30,560

what's behind the tadpole

54

00:02:33,910 --> 00:02:32,959

thousands of galaxies unexpectedly

55

00:02:36,470 --> 00:02:33,920

captured

56

00:02:39,030 --> 00:02:36,480

just because the acs is so good at its

57

00:02:43,750 --> 00:02:40,790

with sharp image quality and high

58

00:02:46,470 --> 00:02:43,760

sensitivity the acs detects the most

59

00:02:49,670 --> 00:02:46,480

distant objects in space

60

00:02:52,470 --> 00:02:49,680

searches for massive planets

61

00:02:54,390 --> 00:02:52,480

studies the evolution of galaxies

62

00:02:55,750 --> 00:02:54,400

and makes the universe look great while

63

00:02:57,830 --> 00:02:55,760

doing it

64

00:03:00,070 --> 00:02:57,840

hubble's advanced camera for surveys has

65

00:03:01,670 --> 00:03:00,080

been crucial to humanity's understanding

66

00:03:03,270 --> 00:03:01,680

of the universe