



1  
00:00:04,120 --> 00:00:09,669

[Music]

2  
00:00:14,919 --> 00:00:12,520

the Hubble Space Telescope has given us

3  
00:00:18,370 --> 00:00:14,929

an incredible image for its 30th

4  
00:00:21,159 --> 00:00:18,380

birthday this image reveals a beautiful

5  
00:00:23,850 --> 00:00:21,169

nursery for new stars in a nearby

6  
00:00:26,890 --> 00:00:23,860

satellite galaxy to our own Milky Way

7  
00:00:28,990 --> 00:00:26,900

the bright newly formed stars in the

8  
00:00:32,710 --> 00:00:29,000

middle of this image are at least 10

9  
00:00:35,140 --> 00:00:32,720

times more massive than our Sun powerful

10  
00:00:37,930 --> 00:00:35,150

radiation from these stars is causing

11  
00:00:41,560 --> 00:00:37,940

the surrounding gas to glow in stunning

12  
00:00:43,960 --> 00:00:41,570

colors the blue indicates oxygen gas

13  
00:00:46,509 --> 00:00:43,970

heated to nearly 20,000 degrees

14

00:00:49,539 --> 00:00:46,519

Fahrenheit the red indicates the

15

00:00:52,240 --> 00:00:49,549

presence of nitrogen and hydrogen those

16

00:00:54,490 --> 00:00:52,250

massive stars are also driving powerful

17

00:00:56,619 --> 00:00:54,500

winds of charged particles which are

18

00:00:59,429 --> 00:00:56,629

sculpting out the bubble and ridged

19

00:01:02,710 --> 00:00:59,439

structures we can see across the nebula

20

00:01:05,649 --> 00:01:02,720

the blue nebula at the lower left of the

21

00:01:08,920 --> 00:01:05,659

image is actually material ejected from

22

00:01:10,990 --> 00:01:08,930

a single huge star in the center that

23

00:01:14,020 --> 00:01:11,000

star is two hundred thousand times

24

00:01:17,530 --> 00:01:14,030

brighter than our Sun the whole region

25

00:01:20,020 --> 00:01:17,540

shows how dynamic our universe is with

26

00:01:22,210 --> 00:01:20,030

stars continuing to form and affect

27

00:01:24,910 --> 00:01:22,220

their surroundings and it's Hubble's

28

00:01:27,520 --> 00:01:24,920

exquisite vision from its orbit above

29

00:01:29,830 --> 00:01:27,530

Earth's atmosphere that gives us the

30

00:01:32,500 --> 00:01:29,840

ability to get a clearer glimpse of this

31

00:01:36,970 --> 00:01:32,510

kind of incredible beauty and activity

32

00:01:39,670 --> 00:01:36,980

the Hubble Space Telescope has changed

33

00:01:42,370 --> 00:01:39,680

the way we think of space and our place

34

00:01:44,320 --> 00:01:42,380

in the universe Hubble has refined our

35

00:01:47,920 --> 00:01:44,330

understanding of the age of the universe

36

00:01:50,469 --> 00:01:47,930

and its rate of expansion and through

37

00:01:52,630 --> 00:01:50,479

its deep feels it has peered across

38

00:01:55,420 --> 00:01:52,640

billions of light-years to reveal

39

00:01:58,600 --> 00:01:55,430

ancient adolescent galaxies we can

40

00:02:00,850 --> 00:01:58,610

compare with our own Milky Way it has

41

00:02:03,430 --> 00:02:00,860

shown us the telltale effects of

42

00:02:07,000 --> 00:02:03,440

mysterious dark energy and dark matter

43

00:02:09,219 --> 00:02:07,010

and it has given us a front-row seat to

44

00:02:11,530 --> 00:02:09,229

these beautiful interstellar clouds and

45

00:02:13,930 --> 00:02:11,540

nebulae where new stars and their

46

00:02:15,520 --> 00:02:13,940

surrounding discs of dust and planets

47

00:02:18,220 --> 00:02:15,530

continue to form

48

00:02:20,199 --> 00:02:18,230

Hubble is in excellent technical health

49

00:02:22,540 --> 00:02:20,209

and is expected to continue its

50

00:02:24,030 --> 00:02:22,550

exploration of the universe for quite a

51  
00:02:26,890 --> 00:02:24,040  
few years to come

52  
00:02:28,540 --> 00:02:26,900  
multiple astronaut missions to service

53  
00:02:30,910 --> 00:02:28,550  
the Hubble Space Telescope over the

54  
00:02:34,030 --> 00:02:30,920  
years have kept Hubble at the forefront

55  
00:02:36,510 --> 00:02:34,040  
of capability with each servicing

56  
00:02:38,979 --> 00:02:36,520  
mission astronauts repaired or replaced

57  
00:02:41,650 --> 00:02:38,989  
instrumentation keeping Hubble better

58  
00:02:44,290 --> 00:02:41,660  
than ever before the final servicing

59  
00:02:46,960 --> 00:02:44,300  
mission in 2009 was extremely successful

60  
00:02:48,790 --> 00:02:46,970  
so that even today Hubble is more

61  
00:02:52,030 --> 00:02:48,800  
scientifically powerful and productive

62  
00:02:54,310 --> 00:02:52,040  
than ever before you can find out more

63  
00:02:57,580 --> 00:02:54,320

about the Hubble Space Telescope at the

64

00:03:06,710 --> 00:02:57,590

website [nasa.gov](http://nasa.gov) slash Hubble and on