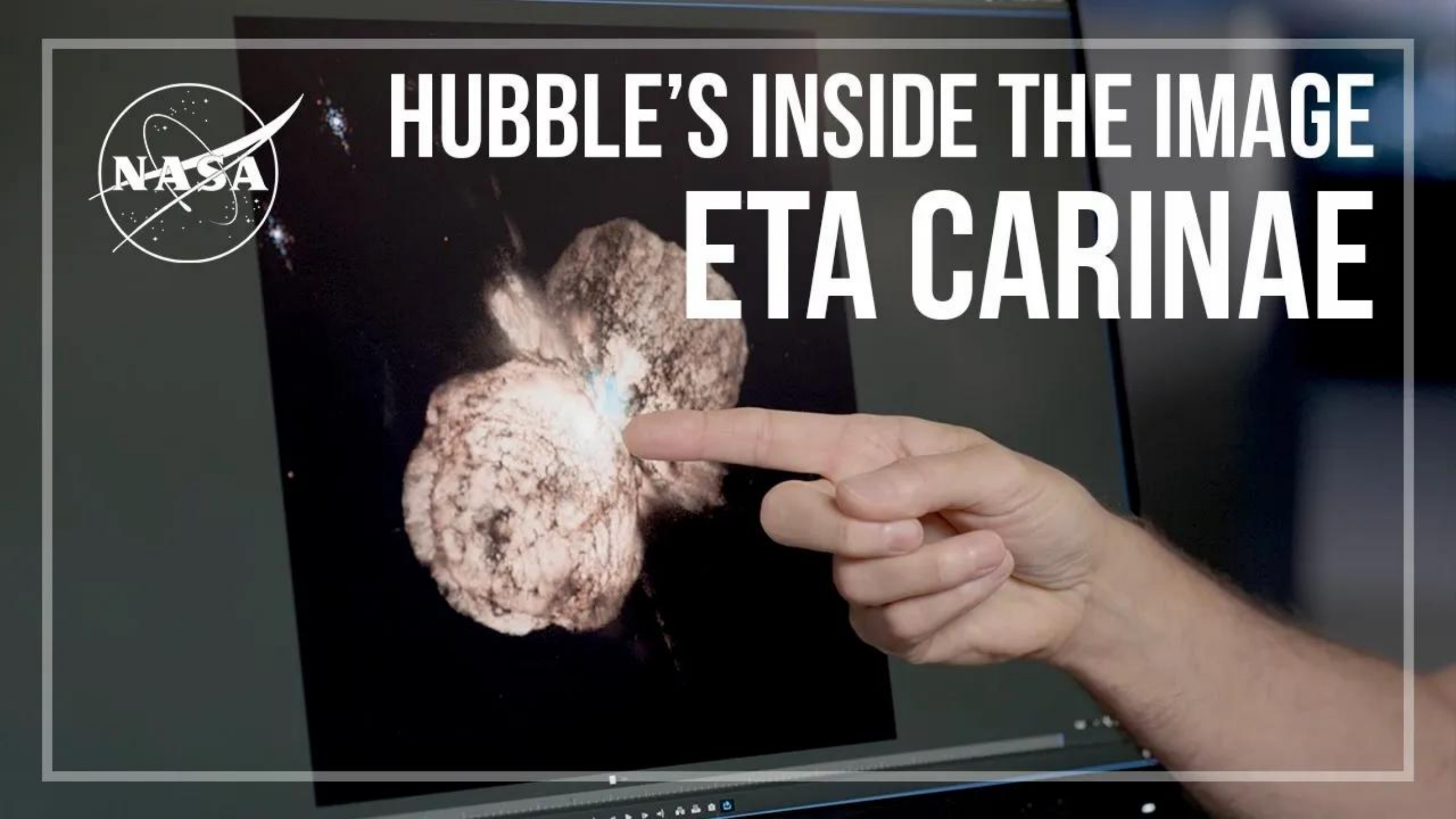
NASA
HUBBLE'S INSIDE THE IMAGE
ETA CARINAE

1
00:00:06,950 --> 00:00:02,010
foreign

2
00:00:11,629 --> 00:00:09,290
this is an image of ADA Carino taken

3
00:00:14,209 --> 00:00:11,639
with the Hubble Space Telescope and

4
00:00:16,369 --> 00:00:14,219
there's a lot going on in this image if

5
00:00:18,529 --> 00:00:16,379
you go down into the very center of this

6
00:00:20,929 --> 00:00:18,539
image you can see this bright spot here

7
00:00:23,450 --> 00:00:20,939
that's actually two stars much much more

8
00:00:25,670 --> 00:00:23,460
massive than the Sun that are in orbit

9
00:00:29,570 --> 00:00:25,680
around one another so what you see here

10
00:00:33,350 --> 00:00:29,580
are these two lobes of material and they

11
00:00:36,770 --> 00:00:33,360
are from a giant eruption that this star

12
00:00:38,510 --> 00:00:36,780
had about 200 years ago and when these

13
00:00:40,970 --> 00:00:38,520

massive stars are near the ends of their

14
00:00:43,670 --> 00:00:40,980
life they become quite unstable and

15
00:00:46,310 --> 00:00:43,680
there was this a tremendous eruption

16
00:00:48,470 --> 00:00:46,320
that blew up about 20 times the mass of

17
00:00:50,330 --> 00:00:48,480
the Sun and there was a massive

18
00:00:52,430 --> 00:00:50,340
brightening of the star became one of

19
00:00:55,970 --> 00:00:52,440
the brightest stars in the sky in the

20
00:00:58,369 --> 00:00:55,980
1840s and what we see here is the result

21
00:01:01,430 --> 00:00:58,379
of that massive eruption and these lobes

22
00:01:04,009 --> 00:01:01,440
of material that are slowly making their

23
00:01:06,469 --> 00:01:04,019
way out into Interstellar space Mariners

24
00:01:08,690 --> 00:01:06,479
at the time used it as a navigation Aid

25
00:01:12,350 --> 00:01:08,700
this frightening only lasted a number of

26
00:01:14,149 --> 00:01:12,360
years and then it since faded but the

27
00:01:15,410 --> 00:01:14,159
adacrine is still a relatively bright

28
00:01:19,250 --> 00:01:15,420
star

29
00:01:21,230 --> 00:01:19,260
the dust in this homunculus nebula which

30
00:01:24,230 --> 00:01:21,240
is what it's called is going to continue

31
00:01:28,070 --> 00:01:24,240
to expand it's being illuminated by the

32
00:01:31,730 --> 00:01:30,109
here's another image of ADA Carina taken

33
00:01:34,010 --> 00:01:31,740
with Hubble it looks a little different

34
00:01:36,530 --> 00:01:34,020
Hubble Is outfitted with very

35
00:01:39,410 --> 00:01:36,540
specialized filters that can see the

36
00:01:41,870 --> 00:01:39,420
light emitted from specific atoms at

37
00:01:44,690 --> 00:01:41,880
specific wavelengths the blue shows you

38
00:01:47,810 --> 00:01:44,700

where the Magnesium is emitting light

39
00:01:49,969 --> 00:01:47,820
the red shows regions where nitrogen is

40
00:01:52,550 --> 00:01:49,979
emitting light they have different

41
00:01:55,370 --> 00:01:52,560
ionization States they respond to this

42
00:01:56,810 --> 00:01:55,380
ultraviolet light in different ways one

43
00:01:59,030 --> 00:01:56,820
of the things that happens in these

44
00:02:01,730 --> 00:01:59,040
massive stars is they're factories for

45
00:02:03,230 --> 00:02:01,740
heavier elements and that's where the

46
00:02:05,149 --> 00:02:03,240
heavy elements in our bodies and the

47
00:02:07,730 --> 00:02:05,159
Earth all come from stars like this

48
00:02:09,770 --> 00:02:07,740
supernovae and massive stars that

49
00:02:11,869 --> 00:02:09,780
process them and eject the material back

50
00:02:13,850 --> 00:02:11,879
out into space and that's sort of the

51
00:02:15,410 --> 00:02:13,860
hard work that astronomers want to do

52
00:02:17,990 --> 00:02:15,420
because we want to understand all the

53
00:02:20,570 --> 00:02:18,000
details of what's happening in this

54
00:02:24,770 --> 00:02:20,580
nebula that's what these extraordinary

55
00:02:27,170 --> 00:02:24,780
eyes that Hubble has allow us to do

56
00:02:29,330 --> 00:02:27,180
this is a very complex and volatile

57
00:02:32,449 --> 00:02:29,340
object and in fact one of the reasons

58
00:02:34,670 --> 00:02:32,459
for being interested is that on the list

59
00:02:37,729 --> 00:02:34,680
of stars that we know about in the Milky

60
00:02:40,070 --> 00:02:37,739
Way that may soon become supernovae this

61
00:02:42,470 --> 00:02:40,080
is one of them it takes about 8 000

62
00:02:45,050 --> 00:02:42,480
years for the light from Ada Karina to

63
00:02:47,630 --> 00:02:45,060

reach us and so it could already have