

The NASA logo is located in the top-left corner of the image. It consists of a blue circular emblem with a white swoosh and the word "NASA" in white capital letters. The background of the entire image is a deep space photograph of the V838 Mon star, showing a complex, multi-colored nebula with a prominent red core and surrounding blue and white filaments.

NASA

*Hubble's Inside The Image*  
**V838 Mon**

1  
00:00:09,410 --> 00:00:03,680  
foreign

2  
00:00:11,410 --> 00:00:09,420  
[Music]

3  
00:00:15,950 --> 00:00:11,420  
this is an object called

4  
00:00:18,349 --> 00:00:15,960  
v838 monoceratus or v838 Mon and it's a

5  
00:00:21,109 --> 00:00:18,359  
series of images of the same object that

6  
00:00:23,810 --> 00:00:21,119  
are taken over about a half a year or so

7  
00:00:25,790 --> 00:00:23,820  
in 2002.

8  
00:00:28,250 --> 00:00:25,800  
so we see the central object here is the

9  
00:00:30,650 --> 00:00:28,260  
same in each of the four Images but what

10  
00:00:34,850 --> 00:00:30,660  
is immediately apparent is that there's

11  
00:00:36,650 --> 00:00:34,860  
a expanding brightness around it so what

12  
00:00:38,330 --> 00:00:36,660  
was first thought would be that wow

13  
00:00:40,549 --> 00:00:38,340

we've got this gas cloud that is just

14

00:00:43,310 --> 00:00:40,559

spewing away from this object but it was

15

00:00:45,709 --> 00:00:43,320

spewing away an incredibly fast speeds

16

00:00:48,830 --> 00:00:45,719

what is actually happening here instead

17

00:00:50,990 --> 00:00:48,840

of that gas itself being in motion and

18

00:00:53,150 --> 00:00:51,000

causing that expansion is something

19

00:00:55,729 --> 00:00:53,160

called a light Echo so just like you

20

00:00:57,529 --> 00:00:55,739

hear an echo with sound waves as some

21

00:00:59,510 --> 00:00:57,539

sound waves come directly towards you

22

00:01:01,549 --> 00:00:59,520

you hear the main source of sound but

23

00:01:03,349 --> 00:01:01,559

then as others bounce off walls and come

24

00:01:05,329 --> 00:01:03,359

to you a little bit later that's where

25

00:01:07,789 --> 00:01:05,339

the echo comes from the same thing is

26  
00:01:09,050 --> 00:01:07,799  
happening with light in this image we're

27  
00:01:10,850 --> 00:01:09,060  
seeing some of that light coming

28  
00:01:13,370 --> 00:01:10,860  
directly towards us we're receiving that

29  
00:01:14,690 --> 00:01:13,380  
at the time that we receive it but some

30  
00:01:17,990 --> 00:01:14,700  
of the rest of the light is actually

31  
00:01:20,270 --> 00:01:18,000  
bouncing off material around that binary

32  
00:01:23,210 --> 00:01:20,280  
in the center it bounces off it and then

33  
00:01:25,670 --> 00:01:23,220  
it comes to us that's the light Echo and

34  
00:01:28,010 --> 00:01:25,680  
so each one of those succeeding images

35  
00:01:30,109 --> 00:01:28,020  
where we see this shell further and

36  
00:01:33,109 --> 00:01:30,119  
further from the center is actually that

37  
00:01:35,030 --> 00:01:33,119  
light Echo coming to us later in time so

38  
00:01:38,450 --> 00:01:35,040

we're actually basically taking a CAT

39

00:01:41,149 --> 00:01:38,460

scan of the material around that Central

40

00:01:43,609 --> 00:01:41,159

Star there's still a lot of mystery

41

00:01:46,609 --> 00:01:43,619

surrounding where that material came

42

00:01:49,609 --> 00:01:46,619

from is it being blown off by these hot

43

00:01:51,230 --> 00:01:49,619

young energetic stars as a process of

44

00:01:53,870 --> 00:01:51,240

their star formation

45

00:01:56,210 --> 00:01:53,880

one of the coolest possibilities is that

46

00:01:58,850 --> 00:01:56,220

one of these Stars actually engulfed a

47

00:02:00,770 --> 00:01:58,860

giant planet in its orbit it's like a

48

00:02:03,170 --> 00:02:00,780

giant planet like many times the mass of

49

00:02:06,590 --> 00:02:03,180

Jupiter could be in orbit very close to

50

00:02:08,630 --> 00:02:06,600

this very hot large star and the tidal

51  
00:02:10,070 --> 00:02:08,640  
forces and the energy dissipation could

52  
00:02:12,890 --> 00:02:10,080  
have been acting on it in such a way

53  
00:02:15,530 --> 00:02:12,900  
that that now massive planet is losing

54  
00:02:17,570 --> 00:02:15,540  
energy spinning more rapidly and closer

55  
00:02:19,970 --> 00:02:17,580  
to one of those stars and eventually

56  
00:02:21,770 --> 00:02:19,980  
gets engulfed in an explosive event

57  
00:02:24,290 --> 00:02:21,780  
could have been a large planet could

58  
00:02:25,790 --> 00:02:24,300  
have been a small star in that system we

59  
00:02:28,369 --> 00:02:25,800  
don't know what the mass of that

60  
00:02:30,949 --> 00:02:28,379  
intruder was that that interloper that

61  
00:02:32,930 --> 00:02:30,959  
caused this explosive event but it is

62  
00:02:34,670 --> 00:02:32,940  
very likely that it was something in the

63  
00:02:36,350 --> 00:02:34,680

neighborhood of that binary system that

64

00:02:38,869 --> 00:02:36,360

just got too close to one of those Stars