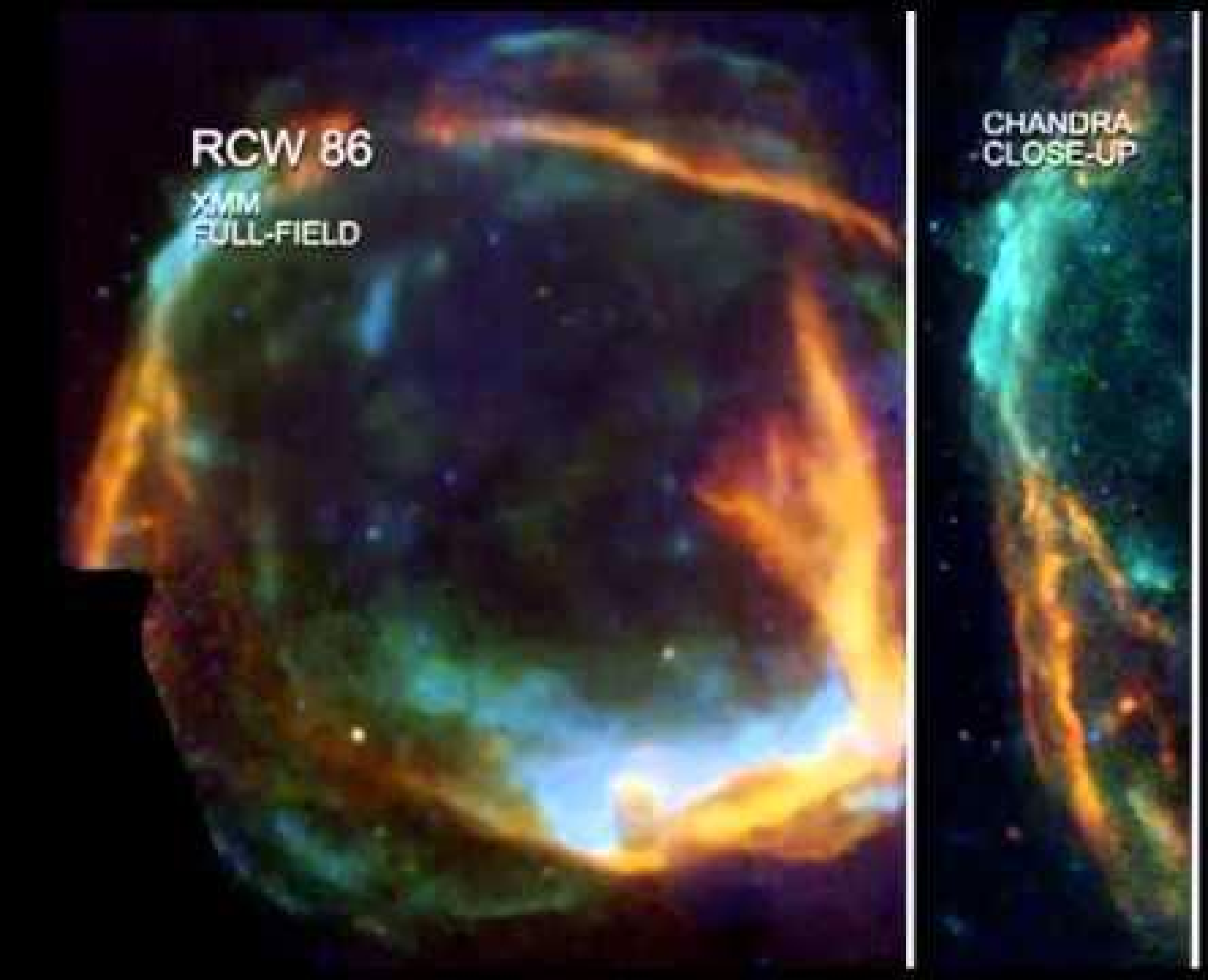
RCW 86
XMM
FULL-FIELD
CHANDRA
CLOSE-UP

1
00:00:01,240 --> 00:00:05,360
\h The Chandra X-ray Observatory orbits high above the Earth,

2
00:00:05,360 --> 00:00:07,610
\h peering into the blackest reaches of space.

3
00:00:07,610 --> 00:00:10,240
\h Exploring the most menacing and magnificent features of the

4
00:00:10,240 --> 00:00:13,880
\h cosmos, this remarkable telescope is revealing what our eyes

5
00:00:13,880 --> 00:00:29,070
\h can't, taking us beyond visible light.

6
00:00:29,070 --> 00:00:33,710
\h Chandra is NASA's flagship X-ray astronomy mission,

7
00:00:33,710 --> 00:00:36,220
\h providing a window into a universe where the most powerful

8
00:00:36,220 --> 00:00:40,380
\h phenomena both flicker in the darkness and shine brightly.

9
00:00:40,380 --> 00:00:42,200
\h DR. HARVEY TANANBAUM: Some of these things, when

10
00:00:42,200 --> 00:00:43,930
\h you see them for the first time, you make the discovery, you

11
00:00:43,930 --> 00:00:48,340
\h make the breakthroughs, and it may be that, that we’re at a

12
00:00:48,340 --> 00:00:52,400
\h particularly special point in time where these key discoveries

13
00:00:52,400 --> 00:00:54,840

\h are made and, once we understand them, we've made certain

14
00:00:54,840 --> 00:00:57,550
\h incredible breakthroughs of our understanding of, of the

15
00:00:57,550 --> 00:01:01,370
\h universe and the laws of physics that govern the universe.

16
00:01:01,370 --> 00:01:03,920
\h The gleaming Chandra is a member of NASA's Great

17
00:01:03,920 --> 00:01:08,230
\h Observatories -- a constellation of extremely powerful space-

18
00:01:08,230 --> 00:01:12,090
\h based telescopes orbiting the planet.

19
00:01:12,090 --> 00:01:15,740
\h The goal of this program is simple but ambitious: to scan the

20
00:01:15,740 --> 00:01:19,670
\h depths of space in search of answers to astronomy's greatest

21
00:01:19,670 --> 00:01:22,370
\h questions.

22
00:01:22,370 --> 00:01:25,330
\h Astronomers examine the universe mainly through four forms

23
00:01:25,330 --> 00:01:32,060
\h of light: infrared, gamma, visible and X-ray light.

24
00:01:32,060 --> 00:01:36,050
\h Studying objects like stars through each type of light reveals

25
00:01:36,050 --> 00:01:38,270
\h new features about them.

26
00:01:38,270 --> 00:01:42,180
\h In a way, it's like looking at space through all of the possible

27
00:01:42,180 --> 00:01:47,170
\h colors to get the most detailed and beautiful picture possible.

28
00:01:47,170 --> 00:01:51,160
\h The Chandra observatory specializes in examining the skies

29
00:01:51,160 --> 00:01:55,530
\h through the most powerful form of light: X-rays.

30
00:01:55,530 --> 00:01:57,120
\h DR. JEREMY DRAKE: Chandra has now taught us that we

31
00:01:57,120 --> 00:02:01,160
\h can use X-rays to go and search out stellar nurseries, work out

32
00:02:01,160 --> 00:02:03,310
\h where stars are forming in our own galaxy and in other

33
00:02:03,310 --> 00:02:05,990
\h galaxies.

34
00:02:05,990 --> 00:02:09,230
\h X-ray light is particularly helpful in cutting through stellar haze

35
00:02:09,230 --> 00:02:12,420
\h and tracing intensely destructive events like the explosion of

36
00:02:12,420 --> 00:02:14,910
\h stars.

37
00:02:14,910 --> 00:02:18,040
\h A cooperative of scientists from organizations including

38
00:02:18,040 --> 00:02:21,470

\h NASA and the Smithsonian designed the Chandra X-ray

39
00:02:21,470 --> 00:02:25,170
\h Observatory to be a black hole hunter and explore high-energy

40
00:02:25,170 --> 00:02:28,980
\h regions of space.

41
00:02:28,980 --> 00:02:32,150
\h The observatory was named after Subrahmanyan

42
00:02:32,150 --> 00:02:35,820
\h Chandrasekhar - a Nobel-prize-winning astrophysicist who

43
00:02:35,820 --> 00:02:39,320
\h studied the structure and evolution of stars.

44
00:02:39,320 --> 00:02:42,120
\h After decades of development, NASA lifted Chandra into

45
00:02:42,120 --> 00:02:47,870
\h space aboard Space Shuttle Columbia on July 23, 1999.

46
00:02:47,870 --> 00:03:05,340
\h SOT: Liftoff video with announcer quote

47
00:03:05,340 --> 00:03:09,370
\h Only eight hours after launch, springs gently push Chandra

48
00:03:09,370 --> 00:03:12,740
\h from Columbia's payload bay, sending the new telescope on its

49
00:03:12,740 --> 00:03:14,390
\h way.

50
00:03:14,390 --> 00:03:18,890
\h SOT: Video of release of Chandra into space