1
00:00:07,340 --> 00:00:04,880
what's up for December the Orion Nebula

2
00:00:09,709 --> 00:00:07,350
hello and welcome I'm Jane Houston Jones

3
00:00:12,770 --> 00:00:09,719
at NASA's Jet Propulsion Laboratory in

4
00:00:14,350 --> 00:00:12,780
Pasadena California this is the final

5
00:00:16,609 --> 00:00:14,360
month of international year of astronomy

6
00:00:19,760 --> 00:00:16,619
but that shouldn't stop you from looking

7
00:00:21,410 --> 00:00:19,770
up next year this month's target is in

8
00:00:25,700 --> 00:00:21,420
one of the most recognizable

9
00:00:27,500 --> 00:00:25,710
constellations Orion the Orion Nebula is

10
00:00:29,330 --> 00:00:27,510
easy to find and it's one of the most

11
00:00:31,519 --> 00:00:29,340
beautiful objects to observe through a

12
00:00:36,260 --> 00:00:31,529
telescope you can see it with your

13
00:00:37,910 --> 00:00:36,270

unaided eye - even from the city Galileo

14
00:00:39,979 --> 00:00:37,920
observed and sketched the Orion

15
00:00:42,049 --> 00:00:39,989
constellation and even the small

16
00:00:44,510 --> 00:00:42,059
grouping of stars in the trapezium

17
00:00:46,430 --> 00:00:44,520
region of the Orion Nebula but he never

18
00:00:49,220 --> 00:00:46,440
wrote about or sketched the nebula

19
00:00:54,560 --> 00:00:49,230
itself no other early astronomers did

20
00:00:57,650 --> 00:00:54,570
either an observation from 1654 shows

21
00:00:59,750 --> 00:00:57,660
not only the three stars Galileo saw but

22
00:01:04,340 --> 00:00:59,760
also the fuzzy patch which we know as

23
00:01:05,840 --> 00:01:04,350
the Orion Nebula in 1656 Christian

24
00:01:09,980 --> 00:01:05,850
Horgan's made one of the earliest

25
00:01:12,620 --> 00:01:09,990
sketches showing more of the nebula the

26
00:01:14,780 --> 00:01:12,630
Ryan nebulas glowing gas surrounds hot

27
00:01:17,780 --> 00:01:14,790
young stars at the edge of a huge

28
00:01:20,300 --> 00:01:17,790
interstellar molecular cloud only 1,500

29
00:01:22,880 --> 00:01:20,310
light-years away this is the nearest

30
00:01:25,370 --> 00:01:22,890
large star forming region and it's our

31
00:01:27,679 --> 00:01:25,380
best window into how stars are born in

32
00:01:30,590 --> 00:01:27,689
the center of the nebula life for

33
00:01:32,600 --> 00:01:30,600
massive young stars whose stellar winds

34
00:01:35,770 --> 00:01:32,610
have carved out a cavity known as the

35
00:01:37,999 --> 00:01:35,780
trapezium in the same region

36
00:01:41,090 --> 00:01:38,009
protoplanetary discs are forming from

37
00:01:45,080 --> 00:01:41,100
gas and dust solar systems like our own

38
00:01:49,210 --> 00:01:45,090

form from disks like these the stellar

39
00:01:51,670 --> 00:01:49,220
winds from stars create bubbles and arcs

40
00:01:56,890 --> 00:01:51,680
bow shocks

41
00:01:59,140 --> 00:01:56,900
and a huge deep bowl dark pillars of gas

42
00:02:03,150 --> 00:01:59,150
are found in the outer layers and cool

43
00:02:05,590 --> 00:02:03,160
brown dwarfs lie within the nebula too

44
00:02:08,380 --> 00:02:05,600
next time you step outside and look at

45
00:02:10,840 --> 00:02:08,390
the Orion constellation notice his three

46
00:02:13,810 --> 00:02:10,850
belt stars and the sword hanging from

47
00:02:15,460 --> 00:02:13,820
his belt the middle star in the sword

48
00:02:17,760 --> 00:02:15,470
looks just like William Herschel's

49
00:02:21,310 --> 00:02:17,770
description of two centuries ago an

50
00:02:22,449 --> 00:02:21,320
unformed fiery mist the chaotic material

51
00:02:26,740 --> 00:02:22,459
of future Suns

52
00:02:30,729 --> 00:02:26,750
that's the Orion Nebula you can learn

53
00:02:32,890 --> 00:02:30,739
all about NASA's missions at WWDC gov