



1  
00:00:00,300 --> 00:00:03,803  
[ ■ ]

2  
00:00:03,836 --> 00:00:05,471  
What's Up for December?

3  
00:00:05,504 --> 00:00:08,007  
high rates for the  
Geminid meteor shower,

4  
00:00:08,040 --> 00:00:09,475  
a visible comet

5  
00:00:09,508 --> 00:00:11,244  
and a fond farewell.

6  
00:00:12,144 --> 00:00:14,080  
Hello and welcome. I'm Jane  
Houston Jones from

7  
00:00:14,113 --> 00:00:17,650  
NASA's Jet Propulsion Laboratory  
in Pasadena, California.

8  
00:00:19,518 --> 00:00:22,355  
December's Geminid meteors peak  
on the morning of the 14th

9  
00:00:22,388 --> 00:00:27,360  
at 7:30 a.m. Eastern Standard  
Time or 4:30 a.m. Pacific

10  
00:00:27,393 --> 00:00:30,863  
and are active from December 4th  
through the 17th.

11  
00:00:30,896 --> 00:00:33,866  
The peak lasts for  
a full 24 hours,

12

00:00:33,899 --> 00:00:36,369  
meaning meteor watchers  
around the globe

13

00:00:36,402 --> 00:00:38,271  
will get to see this spectacle.

14

00:00:38,771 --> 00:00:41,074  
If you can see the familiar  
winter constellations

15

00:00:41,107 --> 00:00:45,044  
Orion and Gemini in the sky,  
you'll see some Geminids.

16

00:00:45,077 --> 00:00:48,014  
Expect to see up to 120  
meteors per hour

17

00:00:48,047 --> 00:00:49,849  
from a dark sky location

18

00:00:49,882 --> 00:00:52,085  
but only after the  
first quarter moon sets

19

00:00:52,118 --> 00:00:54,387  
around midnight your local time.

20

00:00:54,954 --> 00:00:57,790  
From the Southern Hemisphere,  
observers should see fewer

21

00:00:57,823 --> 00:01:00,493  
but still plenty of  
medium-speed meteors

22

00:01:00,526 --> 00:01:02,895

once Gemini rises  
above the horizon

23

00:01:02,928 --> 00:01:04,731  
after midnight local time.

24

00:01:05,264 --> 00:01:07,467  
The best observing equipment  
for meteor watching

25

00:01:07,500 --> 00:01:09,969  
is a comfortable chair  
and your eyes.

26

00:01:10,002 --> 00:01:11,104  
[whoosh]

27

00:01:11,137 --> 00:01:14,974  
Comet 46P/Wirtanen started  
to brighten last month

28

00:01:15,007 --> 00:01:17,610  
but it will be easier  
to see in December.

29

00:01:17,643 --> 00:01:19,078  
It's a short-period comet

30

00:01:19,111 --> 00:01:22,682  
with an orbital period  
of only 5.4 years.

31

00:01:22,715 --> 00:01:26,219  
Its diameter is estimated  
to be 3/4 of a mile

32

00:01:26,252 --> 00:01:28,655  
or 1.2 kilometers across.

33

00:01:29,688 --> 00:01:34,594  
On December 16, 46P will  
be only 7.2 million miles

34  
00:01:34,627 --> 00:01:37,797  
or 11.7 million kilometers  
from Earth

35  
00:01:37,830 --> 00:01:40,566  
and will reach an estimated  
naked-eye magnitude

36  
00:01:40,599 --> 00:01:42,935  
of 3 to 7.5

37  
00:01:42,968 --> 00:01:46,205  
making this comet's pass the  
brightest predicted

38  
00:01:46,238 --> 00:01:49,676  
and the brightest close approach  
to Earth in over 20 years.

39  
00:01:50,643 --> 00:01:52,945  
Catch your last view of  
Saturn for several months

40  
00:01:52,978 --> 00:01:54,714  
when it's near the  
Moon at sunset

41  
00:01:54,747 --> 00:01:56,950  
December 8 thru  
the 10th.

42  
00:01:59,151 --> 00:02:02,422  
Then Mars meets up with the Moon  
December 13th thru the 15th.

43  
00:02:04,290 --> 00:02:08,427

From December 24th to the 26th  
catch the Moon above, near, and

44

00:02:08,460 --> 00:02:11,631

below Leo's bright  
white star Regulus.

45

00:02:13,499 --> 00:02:16,102

Year-end brings the Moon near  
Virgo's pretty white star Spica

46

00:02:16,135 --> 00:02:18,938

from the 29th through the 31st.

47

00:02:20,673 --> 00:02:22,642

It's been an honor  
to write and host

48

00:02:22,675 --> 00:02:26,279

these monthly stargazing  
shows for you since 2007.

49

00:02:27,046 --> 00:02:29,715

What's Up has covered the  
day and nighttime sky,

50

00:02:29,748 --> 00:02:31,851

from sunsets to eclipses,

51

00:02:31,884 --> 00:02:35,621

planets, comets, and everything  
in our amazing solar system

52

00:02:35,654 --> 00:02:36,856

and beyond--

53

00:02:36,889 --> 00:02:40,360

and will continue to do so next  
year with a new voice.

54

00:02:41,527 --> 00:02:42,695

Remember, you can catch up on

55

00:02:42,728 --> 00:02:48,001

all of NASA's current and future  
missions at: [www.nasa.gov](http://www.nasa.gov)

56

00:02:48,634 --> 00:02:50,903

That's all for me. I'm  
Jane Houston Jones.

57

00:02:51,637 --> 00:02:52,672

NASA Jet Propulsion Laboratory