1
00:00:06,440 --> 00:00:04,820
what's up for April did you know you can

2
00:00:09,339 --> 00:00:06,450
see other galaxies through modest

3
00:00:12,020 --> 00:00:09,349
telescopes or binoculars while you can

4
00:00:14,240 --> 00:00:12,030
hello and welcome I'm Jane Houston Jones

5
00:00:17,960 --> 00:00:14,250
at NASA's Jet Propulsion Laboratory in

6
00:00:19,670 --> 00:00:17,970
Pasadena California during 2009 were

7
00:00:22,070 --> 00:00:19,680
celebrating international year of

8
00:00:24,230 --> 00:00:22,080
astronomy by taking you on a tour of one

9
00:00:26,859 --> 00:00:24,240
of the month's best celestial objects

10
00:00:29,599 --> 00:00:26,869
this month it's the Whirlpool Galaxy

11
00:00:32,389 --> 00:00:29,609
join me as we step away from our solar

12
00:00:35,770 --> 00:00:32,399
system look beyond our own galaxy and

13
00:00:38,389 --> 00:00:35,780

view the spiral arms of another galaxy

14
00:00:40,819 --> 00:00:38,399
because we are inside our own galaxy

15
00:00:42,979 --> 00:00:40,829
about two-thirds of the way from the

16
00:00:45,529 --> 00:00:42,989
galactic core we can't see the whole

17
00:00:47,119 --> 00:00:45,539
thing but we can see the spiral arms and

18
00:00:53,100 --> 00:00:47,129
so we know we live in a spiral-shaped

19
00:00:57,639 --> 00:00:55,569
early astronomers looked up in the night

20
00:01:00,040 --> 00:00:57,649
sky and saw patches of light which

21
00:01:03,640 --> 00:01:00,050
appeared like far away clouds they

22
00:01:06,370 --> 00:01:03,650
called these patches nebula in 1845

23
00:01:09,219 --> 00:01:06,380
Ireland's third Earl of Ross William

24
00:01:11,440 --> 00:01:09,229
Parsons used his huge telescope at burr

25
00:01:13,480 --> 00:01:11,450
castle in the center of Ireland to

26
00:01:18,310 --> 00:01:13,490
observe and sketch the spiral structure

27
00:01:20,350 --> 00:01:18,320
of the Whirlpool Galaxy other 18th and

28
00:01:22,510 --> 00:01:20,360
19th century astronomers including

29
00:01:25,469 --> 00:01:22,520
father and son William and John Herschel

30
00:01:28,330 --> 00:01:25,479
noted the structure of this galaxy to a

31
00:01:31,389 --> 00:01:28,340
galaxy is an enormous collection of gas

32
00:01:33,580 --> 00:01:31,399
and stars held together by gravity since

33
00:01:35,889 --> 00:01:33,590
the 19th century astronomers have aimed

34
00:01:38,830 --> 00:01:35,899
telescopes at galaxies discovering their

35
00:01:40,900 --> 00:01:38,840
composition in the 20th century NASA's

36
00:01:42,850 --> 00:01:40,910
orbiting telescopes have looked at this

37
00:01:44,710 --> 00:01:42,860
amazing galaxy to see it in many

38
00:01:48,279 --> 00:01:44,720

portions of the electromagnetic spectrum

39
00:01:50,790 --> 00:01:48,289
from radio to infrared on to visible

40
00:01:54,400 --> 00:01:50,800
light and past visible to ultraviolet

41
00:01:56,499 --> 00:01:54,410
x-ray and gamma-ray NASA's Spitzer Space

42
00:01:59,020 --> 00:01:56,509
Telescope looks at galaxies in the

43
00:02:02,260 --> 00:01:59,030
infrared part of the spectrum it can see

44
00:02:05,499 --> 00:02:02,270
long lanes in spiral arms they are stars

45
00:02:07,569 --> 00:02:05,509
and gas laced with dust the Hubble Space

46
00:02:09,370 --> 00:02:07,579
Telescope sees similar views in a

47
00:02:11,800 --> 00:02:09,380
different wavelengths it looks at the

48
00:02:13,900 --> 00:02:11,810
optical part of the spectrum or what we

49
00:02:16,500 --> 00:02:13,910
think of as visible light that's the

50
00:02:19,150 --> 00:02:16,510
light we can see NASA's Chandra x-ray

51
00:02:22,210 --> 00:02:19,160
Observatory reveals black holes neutron

52
00:02:24,520 --> 00:02:22,220
stars and a glow between the stars of

53
00:02:26,860 --> 00:02:24,530
the Whirlpool Galaxy and last but not

54
00:02:29,170 --> 00:02:26,870
least the galaxy Telescope shows that

55
00:02:31,930 --> 00:02:29,180
hot young stars produce a lot of

56
00:02:34,060 --> 00:02:31,940
ultraviolet energy don't forget to view

57
00:02:37,210 --> 00:02:34,070
Saturn this month either it's higher in

58
00:02:38,890 --> 00:02:37,220
the sky and easier to see you can read

59
00:02:41,110 --> 00:02:38,900
all about the Whirlpool and other

60
00:02:43,210 --> 00:02:41,120
galaxies in the distant universe this

61
00:02:47,319 --> 00:02:43,220
month on NASA's international year of

62
00:02:50,470 --> 00:02:47,329
astronomy website astronomy 2009 NASA

63
00:02:55,360 --> 00:02:50,480

gov and you can learn all about NASA's