1
00:00:06,070 --> 00:00:03,669
what's up for may

2
00:00:08,230 --> 00:00:06,080
hello and welcome i'm jane houston jones

3
00:00:10,950 --> 00:00:08,240
at nasa's jet propulsion laboratory in

4
00:00:13,190 --> 00:00:10,960
pasadena california 2009 is

5
00:00:15,110 --> 00:00:13,200
international year of astronomy each

6
00:00:17,109 --> 00:00:15,120
month this year we'll take you on a tour

7
00:00:17,990 --> 00:00:17,119
of one of the best celestial objects on

8
00:00:20,950 --> 00:00:18,000
view

9
00:00:23,269 --> 00:00:20,960
this month it's our star the sun

10
00:00:25,670 --> 00:00:23,279
galileo and englishman thomas harriet

11
00:00:29,589 --> 00:00:25,680
both observed the sun and sunspots in

12
00:00:31,750 --> 00:00:29,599
1610 but they weren't the first

13
00:00:35,190 --> 00:00:31,760

chinese and korean astronomers wrote

14
00:00:37,990 --> 00:00:35,200
about sunspots almost 3000 years ago

15
00:00:40,389 --> 00:00:38,000
john of wurster who was an english monk

16
00:00:43,270 --> 00:00:40,399
made the earliest existing drawings of

17
00:00:46,869 --> 00:00:43,280
sunspots in 1128.

18
00:00:48,869 --> 00:00:46,879
galileo solar observations of 1612 were

19
00:00:50,950 --> 00:00:48,879
made at the same time of the day every

20
00:00:53,510 --> 00:00:50,960
day and so the motion of the spots

21
00:00:55,750 --> 00:00:53,520
across the sun can easily be seen

22
00:00:58,069 --> 00:00:55,760
this motion allowed early astronomers to

23
00:01:00,310 --> 00:00:58,079
estimate the sun's rotation period which

24
00:01:02,389 --> 00:01:00,320
is about 27 days

25
00:01:04,390 --> 00:01:02,399
the early astronomers soon projected the

26
00:01:06,310 --> 00:01:04,400
sun's image through the telescope onto a

27
00:01:07,429 --> 00:01:06,320
piece of paper or through a pinhole

28
00:01:09,350 --> 00:01:07,439
projector

29
00:01:12,310 --> 00:01:09,360
this made it possible to study the sun

30
00:01:14,390 --> 00:01:12,320
in detail without damaging their eyes

31
00:01:17,350 --> 00:01:14,400
many other astronomers in the 17th

32
00:01:19,670 --> 00:01:17,360
century including shiner gascendy and

33
00:01:21,910 --> 00:01:19,680
hevelius also recorded their solar

34
00:01:24,310 --> 00:01:21,920
observations

35
00:01:26,550 --> 00:01:24,320
more than two dozen past and present

36
00:01:27,830 --> 00:01:26,560
nasa missions explore the sun earth

37
00:01:30,149 --> 00:01:27,840
system

38
00:01:33,190 --> 00:01:30,159

the ulysses spacecraft which launched in

39
00:01:36,710 --> 00:01:33,200
1990 studied the sun before during and

40
00:01:38,870 --> 00:01:36,720
after the last solar maximum in 2001

41
00:01:41,190 --> 00:01:38,880
after more than 18 years in flight

42
00:01:43,429 --> 00:01:41,200
ulysses returned a wealth of data that

43
00:01:45,030 --> 00:01:43,439
led to a much broader understanding of

44
00:01:46,789 --> 00:01:45,040
the global structure of the sun's

45
00:01:49,749 --> 00:01:46,799
environment

46
00:01:51,830 --> 00:01:49,759
the trace spacecraft launched in 1998

47
00:01:53,990 --> 00:01:51,840
and it studies the magnetic structures

48
00:01:56,870 --> 00:01:54,000
which emerge through the photosphere or

49
00:01:59,590 --> 00:01:56,880
the visible surface of the sun

50
00:02:02,069 --> 00:01:59,600
the genesis spacecraft collected samples

51
00:02:04,310 --> 00:02:02,079
of the solar wind a stream of charged

52
00:02:06,709 --> 00:02:04,320
particles from the sun the samples were

53
00:02:09,190 --> 00:02:06,719
returned to earth in 2004 and are now

54
00:02:11,670 --> 00:02:09,200
being studied in a special lab at nasa's

55
00:02:14,790 --> 00:02:11,680
johnson space center

56
00:02:16,869 --> 00:02:14,800
stereo which launched in 2006 uses two

57
00:02:19,510 --> 00:02:16,879
observatories one ahead of the earth in

58
00:02:22,390 --> 00:02:19,520
its orbit and one behind to study the

59
00:02:24,470 --> 00:02:22,400
structure and evolution of solar storms

60
00:02:26,229 --> 00:02:24,480
as they blast from the sun and move out

61
00:02:28,390 --> 00:02:26,239
through space

62
00:02:30,630 --> 00:02:28,400
soho the solar and heliospheric

63
00:02:33,110 --> 00:02:30,640

observatory has been keeping a watch on

64
00:02:34,869 --> 00:02:33,120
the sun since 1996.

65
00:02:36,949 --> 00:02:34,879
it can warn the earth of approaching

66
00:02:41,030 --> 00:02:36,959
coronal mass ejections that could

67
00:02:44,790 --> 00:02:42,869
never look directly at the sun or you

68
00:02:46,790 --> 00:02:44,800
might damage your eyes

69
00:02:48,550 --> 00:02:46,800
contact your local amateur astronomy

70
00:02:51,030 --> 00:02:48,560
club and join them for safe solar

71
00:02:52,790 --> 00:02:51,040
observing

72
00:02:54,949 --> 00:02:52,800
and remember to view saturn this month

73
00:02:57,350 --> 00:02:54,959
the rings offer a different view

74
00:02:59,509 --> 00:02:57,360
they almost appear to be edge-on

75
00:03:02,229 --> 00:02:59,519
you can read all about the sun on nasa's

76
00:03:06,070 --> 00:03:02,239
international year of astronomy website

77
00:03:11,750 --> 00:03:07,670
and you can learn all about nasa's