
2007
2007 Nov 2 15:50:19

1
00:00:10,549 --> 00:00:07,749
solar cycle update solar max could be

2
00:00:12,470 --> 00:00:10,559
double peaked presented by science at

3
00:00:14,709 --> 00:00:12,480
nasa

4
00:00:15,589 --> 00:00:14,719
something unexpected is happening on the

5
00:00:18,310 --> 00:00:15,599
sun

6
00:00:21,269 --> 00:00:18,320
2013 is supposed to be the year of solar

7
00:00:22,310 --> 00:00:21,279
max the peak of the 11 year sunspot

8
00:00:26,230 --> 00:00:22,320
cycle

9
00:00:28,070 --> 00:00:26,240
yet 2013 has arrived and solar activity

10
00:00:30,070 --> 00:00:28,080
is relatively low

11
00:00:33,430 --> 00:00:30,080
sunspot numbers are well below their

12
00:00:36,470 --> 00:00:33,440
values in 2011 and strong solar flares

13
00:00:38,470 --> 00:00:36,480

have been infrequent for many months

14
00:00:41,270 --> 00:00:38,480
the quiet has led some observers to

15
00:00:43,190 --> 00:00:41,280
wonder if forecasters missed the mark

16
00:00:45,350 --> 00:00:43,200
solar physicist dean pesnell of the

17
00:00:47,270 --> 00:00:45,360
goddard space flight center has a

18
00:00:50,630 --> 00:00:47,280
different explanation

19
00:00:52,630 --> 00:00:50,640
this is solar maximum he suggests but it

20
00:00:55,670 --> 00:00:52,640
looks different from what we expected

21
00:00:57,590 --> 00:00:55,680
because it is double peaked

22
00:00:59,670 --> 00:00:57,600
conventional wisdom holds that solar

23
00:01:01,110 --> 00:00:59,680
activity swings back and forth like a

24
00:01:03,430 --> 00:01:01,120
simple pendulum

25
00:01:06,469 --> 00:01:03,440
at one end of the cycle there is a quiet

26
00:01:08,950 --> 00:01:06,479
time with few sun spots and flares at

27
00:01:11,910 --> 00:01:08,960
the other end solar max brings high

28
00:01:14,390 --> 00:01:11,920
sunspot numbers and solar storms it's a

29
00:01:15,910 --> 00:01:14,400
regular rhythm that repeats every 11

30
00:01:19,030 --> 00:01:15,920
years

31
00:01:21,030 --> 00:01:19,040
reality however is more complicated

32
00:01:23,109 --> 00:01:21,040
astronomers have been counting sunspots

33
00:01:26,230 --> 00:01:23,119
for centuries and they have seen that

34
00:01:28,710 --> 00:01:26,240
the solar cycle is not perfectly regular

35
00:01:31,030 --> 00:01:28,720
for one thing the back and forth swing

36
00:01:33,990 --> 00:01:31,040
in sunspot counts can take anywhere from

37
00:01:36,950 --> 00:01:34,000
10 to 13 years to complete

38
00:01:39,670 --> 00:01:36,960

also the amplitude of the cycle varies

39
00:01:41,990 --> 00:01:39,680
some solar maxima are very weak

40
00:01:44,950 --> 00:01:42,000
others very strong

41
00:01:48,310 --> 00:01:44,960
pesnell notes yet another complication

42
00:01:53,190 --> 00:01:48,320
the last two solar maxima around 1989

43
00:01:55,109 --> 00:01:53,200
and 2001 had not one but two peaks

44
00:01:57,910 --> 00:01:55,119
solar activity went up

45
00:02:01,990 --> 00:01:57,920
dipped then resumed performing a mini

46
00:02:03,990 --> 00:02:02,000
cycle that lasted about two years

47
00:02:07,190 --> 00:02:04,000
the same thing could be happening now

48
00:02:10,389 --> 00:02:07,200
sunspot counts jumped in 2011 dipped in

49
00:02:12,869 --> 00:02:10,399
2012 and pesnell expects them to rebound

50
00:02:14,790 --> 00:02:12,879
again in 2013.

51
00:02:17,750 --> 00:02:14,800
i am comfortable in saying that another

52
00:02:21,589 --> 00:02:17,760
peak will happen in 2013 and possibly

53
00:02:23,510 --> 00:02:21,599
last into 2014 he predicts

54
00:02:25,830 --> 00:02:23,520
another curiosity of the solar cycle is

55
00:02:28,150 --> 00:02:25,840
that the sun's hemispheres do not always

56
00:02:30,229 --> 00:02:28,160
peak at the same time in the current

57
00:02:31,430 --> 00:02:30,239
cycle the south has been lagging behind

58
00:02:34,070 --> 00:02:31,440
the north

59
00:02:35,910 --> 00:02:34,080
the second peak if it occurs will likely

60
00:02:38,550 --> 00:02:35,920
feature the southern hemisphere playing

61
00:02:41,350 --> 00:02:38,560
catch-up with a surge in activity south

62
00:02:43,270 --> 00:02:41,360
of the sun's equator

63
00:02:46,070 --> 00:02:43,280

pesnell is a leading member of the noaa

64
00:02:47,990 --> 00:02:46,080
nasa solar cycle prediction panel a blue

65
00:02:51,910 --> 00:02:48,000
ribbon group of solar physicists who

66
00:02:54,390 --> 00:02:51,920
assembled in 2006 and 2008 to forecast

67
00:02:56,710 --> 00:02:54,400
the next solar max

68
00:02:59,750 --> 00:02:56,720
at the time the sun was experiencing its

69
00:03:02,470 --> 00:02:59,760
deepest minimum in nearly 100 years

70
00:03:05,350 --> 00:03:02,480
sunspot numbers were pegged near zero

71
00:03:07,430 --> 00:03:05,360
and x-ray flare activity flatlined for

72
00:03:09,830 --> 00:03:07,440
months at a time

73
00:03:12,309 --> 00:03:09,840
recognizing that deep minima are often

74
00:03:13,750 --> 00:03:12,319
followed by weak maxima and pulling

75
00:03:16,149 --> 00:03:13,760
together many other threads of

76
00:03:19,430 --> 00:03:16,159
predictive evidence the panel issued

77
00:03:21,990 --> 00:03:19,440
this statement the solar cycle 24

78
00:03:23,910 --> 00:03:22,000
prediction panel has reached a consensus

79
00:03:27,190 --> 00:03:23,920
the panel has decided that the next

80
00:03:29,589 --> 00:03:27,200
solar cycle cycle 24 will be below

81
00:03:31,670 --> 00:03:29,599
average in intensity with a maximum

82
00:03:33,589 --> 00:03:31,680
sunspot number of 90.

83
00:03:35,990 --> 00:03:33,599
given the date of solar minimum and the

84
00:03:38,390 --> 00:03:36,000
predicted maximum intensity solar

85
00:03:39,990 --> 00:03:38,400
maximum is now expected to occur in may

86
00:03:42,869 --> 00:03:40,000
2013.

87
00:03:44,789 --> 00:03:42,879
note this is not a unanimous decision

88
00:03:47,350 --> 00:03:44,799

but a super majority of the panel did

89
00:03:49,270 --> 00:03:47,360
agree

90
00:03:52,630 --> 00:03:49,280
given the tepid state of solar activity

91
00:03:54,070 --> 00:03:52,640
in february 2013 a maximum in may now

92
00:03:55,830 --> 00:03:54,080
seems unlikely

93
00:03:57,990 --> 00:03:55,840
we may be seeing what happens when you

94
00:04:00,309 --> 00:03:58,000
predict a single amplitude and the sun

95
00:04:01,990 --> 00:04:00,319
responds with a double peak comments

96
00:04:06,869 --> 00:04:02,000
pesnell

97
00:04:10,309 --> 00:04:06,879
similarity between solar cycle 24

98
00:04:11,990 --> 00:04:10,319
underway now and solar cycle 14 which

99
00:04:14,390 --> 00:04:12,000
had a double peak during the first

100
00:04:16,870 --> 00:04:14,400
decade of the 20th century

101
00:04:19,749 --> 00:04:16,880
if the two cycles are in fact twins it

102
00:04:22,069 --> 00:04:19,759
would mean one peak in late 2013 and

103
00:04:23,909 --> 00:04:22,079
another in 2015.

104
00:04:26,469 --> 00:04:23,919
no one knows for sure what the sun will

105
00:04:29,670 --> 00:04:26,479
do next it seems likely though that the

106
00:04:31,510 --> 00:04:29,680
end of 2013 could be a lot livelier than

107
00:04:33,270 --> 00:04:31,520
the beginning

108
00:04:35,189 --> 00:04:33,280
for more news about the progress of the