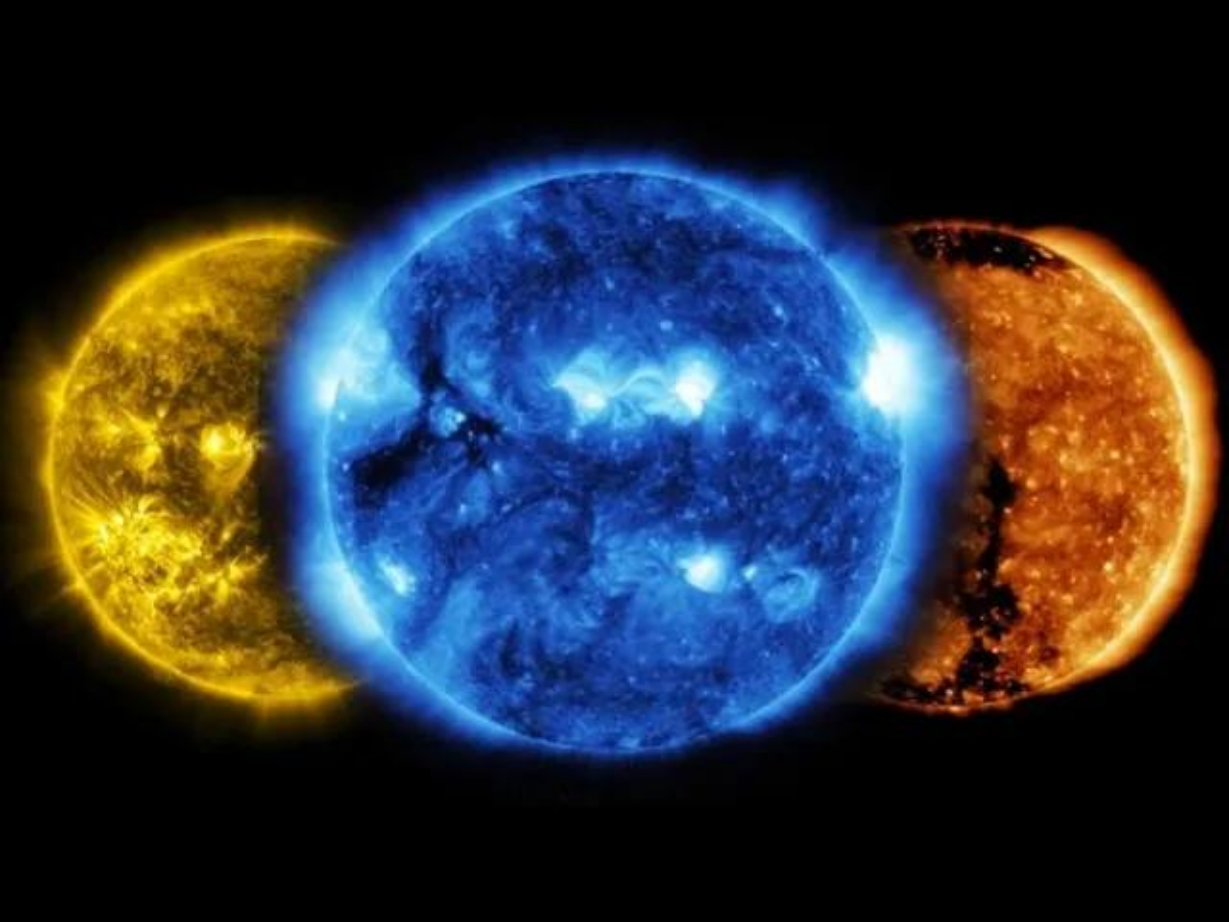

1
00:00:04,309 --> 00:00:02,629
when you take a picture of the sky you

2
00:00:06,950 --> 00:00:04,319
might see this

3
00:00:08,950 --> 00:00:06,960
an overexposed bright white glare that

4
00:00:11,350 --> 00:00:08,960
we know as the sun

5
00:00:13,589 --> 00:00:11,360
in photos the sun appears white because

6
00:00:14,709 --> 00:00:13,599
it emits all the colors we can see at

7
00:00:16,790 --> 00:00:14,719
once

8
00:00:19,429 --> 00:00:16,800
our eyes can only see a narrow range of

9
00:00:21,510 --> 00:00:19,439
light known as the visible spectrum when

10
00:00:22,550 --> 00:00:21,520
they combine together they make white

11
00:00:26,770 --> 00:00:22,560
light

12
00:00:30,070 --> 00:00:26,780
invisible to the naked eye

13
00:00:35,990 --> 00:00:31,910

these are images from nasa's solar

14
00:00:38,229 --> 00:00:36,000
dynamics observatory or sdo

15
00:00:40,630 --> 00:00:38,239
it was launched in 2010 and has been

16
00:00:42,830 --> 00:00:40,640
observing the sun from space in a way

17
00:00:46,150 --> 00:00:42,840
that our eyes

18
00:00:48,549 --> 00:00:46,160
cannot sda uses instruments with special

19
00:00:50,869 --> 00:00:48,559
filters to see the sun in 10 different

20
00:00:53,350 --> 00:00:50,879
wavelengths of light including many that

21
00:00:55,510 --> 00:00:53,360
we can't see with our own eyes

22
00:00:58,709 --> 00:00:55,520
for us to see them scientists convert

23
00:01:00,549 --> 00:00:58,719
sda's data to colours we can see

24
00:01:02,150 --> 00:01:00,559
the different colors correspond to

25
00:01:03,189 --> 00:01:02,160
different temperatures and regions on

26
00:01:07,429 --> 00:01:03,199
the sun

27
00:01:09,270 --> 00:01:07,439
releases material that can travel across

28
00:01:12,630 --> 00:01:09,280
the solar system and affect our

29
00:01:14,550 --> 00:01:12,640
technology in space and on earth

30
00:01:16,550 --> 00:01:14,560
these wavelengths show us the sun's

31
00:01:18,149 --> 00:01:16,560
upper atmospheric layers at different

32
00:01:20,390 --> 00:01:18,159
temperatures

33
00:01:23,190 --> 00:01:20,400
this wavelength highlights filaments and

34
00:01:27,590 --> 00:01:25,429
these wavelengths highlight the corona

35
00:01:29,350 --> 00:01:27,600
the sun's atmosphere that is much hotter

36
00:01:31,670 --> 00:01:29,360
than the sun's surface

37
00:01:33,910 --> 00:01:31,680
and shows features like coronal loops

38
00:01:35,910 --> 00:01:33,920

and coronal holes

39
00:01:38,230 --> 00:01:35,920
the wavelengths here reveal the sun's

40
00:01:40,390 --> 00:01:38,240
active regions which have intense

41
00:01:43,030 --> 00:01:40,400
magnetic activity that sometimes give

42
00:01:44,870 --> 00:01:43,040
rise to eruptions

43
00:01:49,270 --> 00:01:44,880
these wavelengths can see the hottest

44
00:01:53,510 --> 00:01:51,590
being able to see constant movement of

45
00:01:55,990 --> 00:01:53,520
material on the sun and in its

46
00:01:58,630 --> 00:01:56,000
atmosphere can help scientists better

47
00:02:00,709 --> 00:01:58,640
understand how our sun behaves

48
00:02:02,870 --> 00:02:00,719
and how to track storms that might

49
00:02:07,040 --> 00:02:02,880
affect our satellites and astronauts in

50
00:02:12,710 --> 00:02:07,050
space or communications on earth