1
00:00:24,370 --> 00:00:21,460
climate scientists have an enormous

2
00:00:28,480 --> 00:00:24,380
challenge which is to understand how or

3
00:00:29,710 --> 00:00:28,490
why climate varies working on Tim and

4
00:00:32,140 --> 00:00:29,720
the glory mission as yet another

5
00:00:34,120 --> 00:00:32,150
dimension to that which is understanding

6
00:00:37,210 --> 00:00:34,130
how the Sun changes and how that affects

7
00:00:39,910 --> 00:00:37,220
climate total solar irradiance is

8
00:00:42,370 --> 00:00:39,920
actually a term that scientists have

9
00:00:44,950 --> 00:00:42,380
begun to use only really in the last 20

10
00:00:48,100 --> 00:00:44,960
years before that it was called the

11
00:00:50,910 --> 00:00:48,110
solar constant so the solar constant is

12
00:00:53,350 --> 00:00:50,920
the integral of all of the energy

13
00:00:56,080 --> 00:00:53,360

radiated by the Sun at all wavelengths

14
00:00:58,960 --> 00:00:56,090
we soon learned that actually this solar

15
00:01:00,760 --> 00:00:58,970
constant varies so therefore we can't

16
00:01:03,700 --> 00:01:00,770
call it the solar constant anymore so we

17
00:01:05,320 --> 00:01:03,710
call it the total solar irradiance which

18
00:01:07,410 --> 00:01:05,330
is really a fancy name for the sun's

19
00:01:10,030 --> 00:01:07,420
brightness

20
00:01:15,050 --> 00:01:13,010
scientists have wondered for hundreds of

21
00:01:17,270 --> 00:01:15,060
years how the sun's radiation changed

22
00:01:20,480 --> 00:01:17,280
there was a series of ground-based

23
00:01:23,510 --> 00:01:20,490
measurements and they couldn't determine

24
00:01:25,670 --> 00:01:23,520
if the changes that they were see were

25
00:01:30,300 --> 00:01:25,680
from the Sun itself or from the

26
00:01:35,069 --> 00:01:32,520
it's important to make measurements of

27
00:01:38,100 --> 00:01:35,079
the solid radiance from space because

28
00:01:40,920 --> 00:01:38,110
it's the only way with a measure the

29
00:01:44,600 --> 00:01:40,930
variability the total irradiance monitor

30
00:01:48,120 --> 00:01:44,610
on glory is at its most basic a

31
00:01:50,340 --> 00:01:48,130
radiometer it looks at the Sun as of

32
00:01:54,060 --> 00:01:50,350
start and measures all that incoming

33
00:01:58,410 --> 00:01:54,070
energy the total irradiance monitor on

34
00:02:02,580 --> 00:01:58,420
glory is state-of-the-art instrument it

35
00:02:04,499 --> 00:02:02,590
has unsurpassed accuracy so that means

36
00:02:06,690 --> 00:02:04,509
we're moving into a new generation of

37
00:02:10,169 --> 00:02:06,700
solar radius measurements with this

38
00:02:12,300 --> 00:02:10,179

higher accuracy and precision we have

39
00:02:14,250 --> 00:02:12,310
recognized that we need to know and

40
00:02:18,240 --> 00:02:14,260
monitor the forces of climate change

41
00:02:22,140 --> 00:02:18,250
over a long period the team measurement

42
00:02:23,970 --> 00:02:22,150
is crucial in continuing this record of

43
00:02:28,020 --> 00:02:23,980
the sun's radiation that we now have

44
00:02:30,479 --> 00:02:28,030
covering almost three solar cycles so

45
00:02:33,080 --> 00:02:30,489
now in a period of what's proving to be

46
00:02:35,550 --> 00:02:33,090
quite a prolonged solar minimum period

47
00:02:37,800 --> 00:02:35,560
the solar minimum period is very

48
00:02:39,960 --> 00:02:37,810
important to measure accurately because

49
00:02:44,160 --> 00:02:39,970
one of the big questions for climate

50
00:02:47,490 --> 00:02:44,170
change is what happens in episodes of

51
00:02:48,960 --> 00:02:47,500
prolonged solar minima the total

52
00:02:52,099 --> 00:02:48,970
irradiance monitor on glory will be

53
00:02:55,020 --> 00:02:52,109
launched at a time to capture this very

54
00:02:56,460 --> 00:02:55,030
uniquely long and low minimum so we're

55
00:02:58,460 --> 00:02:56,470
very excited about what the measurements