



1  
00:00:20,900 --> 00:00:17,570  
serenely beautiful from 93 million miles

2  
00:00:24,560 --> 00:00:20,910  
away the Sun is actually a violently

3  
00:00:26,509 --> 00:00:24,570  
energetic system so complex the numerous

4  
00:00:29,000 --> 00:00:26,519  
scientists like dr. Tom Duvall from

5  
00:00:31,389 --> 00:00:29,010  
NASA's Goddard Space Flight Center are

6  
00:00:33,709 --> 00:00:31,399  
dedicating their careers to its study

7  
00:00:36,860 --> 00:00:33,719  
working at the kid feat National

8  
00:00:38,540 --> 00:00:36,870  
Observatory outside Tucson Arizona dr.

9  
00:00:46,440 --> 00:00:38,550  
Duval and his colleagues use a variety

10  
00:00:52,150 --> 00:00:49,930  
this mcmath instrument on Kitt Peak is

11  
00:00:56,380 --> 00:00:52,160  
the largest solar telescope in the world

12  
00:00:59,290 --> 00:00:56,390  
an 81 inch mirror on its roof tracks the

13  
00:01:01,600 --> 00:00:59,300

sun's daily passage sending a beam down

14

00:01:04,369 --> 00:01:01,610

the shaft extending 300 feet below

15

00:01:09,109 --> 00:01:07,219

the result is a unique high-resolution

16

00:01:13,219 --> 00:01:09,119

image of the Sun about two-and-a-half

17

00:01:15,380 --> 00:01:13,229

feet in diameter dr. Duval hopes to get

18

00:01:17,569 --> 00:01:15,390

at the causes of solar activity by

19

00:01:21,230 --> 00:01:17,579

determining what's going on in the sun's

20

00:01:24,440 --> 00:01:21,240

interior his ultimate goal to predict

21

00:01:26,600 --> 00:01:24,450

some of the phenomena associated with

22

00:01:29,419 --> 00:01:26,610

solar activity that are troublesome to

23

00:01:32,330 --> 00:01:29,429

us here on earth most of dr. Duval's

24

00:01:35,749 --> 00:01:32,340

work is done in this 81 foot high solar

25

00:01:38,059 --> 00:01:35,759

vacuum telescope again mirrors are used

26

00:01:43,550 --> 00:01:38,069

to reflect an image of the Sun down into

27

00:01:46,429 --> 00:01:43,560

the instruments control room here a

28

00:01:50,449 --> 00:01:46,439

daily map of magnetic phenomena on the

29

00:01:53,179 --> 00:01:50,459

sun's surface is produced nearly all

30

00:01:56,449 --> 00:01:53,189

forms of solar activity from some spots

31

00:01:58,480 --> 00:01:56,459

the flares create magnetic fields if

32

00:02:00,919 --> 00:01:58,490

these disturbances are strong enough

33

00:02:03,469 --> 00:02:00,929

Communications on earth can be disrupted

34

00:02:09,650 --> 00:02:03,479

there may even be a relationship between

35

00:02:15,470 --> 00:02:12,440

at NASA's Marshall Space Flight Center

36

00:02:17,900 --> 00:02:15,480

in Huntsville Alabama Richard Hoover an

37

00:02:21,380 --> 00:02:17,910

astrophysicist studies the Sun with

38

00:02:23,720 --> 00:02:21,390

x-ray telescopes this mirror was part of

39

00:02:28,640 --> 00:02:23,730

an instrument used on Skylab to produce

40

00:02:31,070 --> 00:02:28,650

solar images today Hoover and scientists

41

00:02:32,930 --> 00:02:31,080

from Stanford University are working

42

00:02:36,290 --> 00:02:32,940

with the new generation of x-ray

43

00:02:38,720 --> 00:02:36,300

telescopes and they're producing

44

00:02:41,270 --> 00:02:38,730

phenomenally high resolution images

45

00:02:46,040 --> 00:02:41,280

reveal in solar turbulence has never

46

00:02:52,530 --> 00:02:50,370

launched in 1980 the 5,500 pounds solar

47

00:02:54,450 --> 00:02:52,540

maximum spacecraft in Congress to

48

00:02:56,820 --> 00:02:54,460

produce information about the center

49

00:02:59,100 --> 00:02:56,830

since being repaired I NASA passed

50

00:03:01,500 --> 00:02:59,110

around its instruments encroaching on

51  
00:03:06,510 --> 00:03:01,510  
your door to reports and seller max is

52  
00:03:10,199 --> 00:03:06,520  
dead on the Sun when the shuttle lives

53  
00:03:12,300 --> 00:03:10,209  
over in October 1990 it will carry its

54  
00:03:14,870 --> 00:03:12,310  
cargo bay another spacecraft that will

55  
00:03:17,460 --> 00:03:14,880  
take a president and look at the Sun

56  
00:03:21,060 --> 00:03:17,470  
developed by NASA and the European Space

57  
00:03:24,150 --> 00:03:21,070  
Agency Ulysses will fly over the solar

58  
00:03:27,810 --> 00:03:24,160  
poles regions of the Sun which may hold

59  
00:03:29,840 --> 00:03:27,820  
important clues about its nature Ulysses

60  
00:03:33,000 --> 00:03:29,850  
five-year journey of exploration

61  
00:03:35,640 --> 00:03:33,010  
together with ceramics and discoveries

62  
00:03:38,130 --> 00:03:35,650  
being made by NASA scientists around the

63  
00:03:42,120 --> 00:03:38,140

country will greatly enhance our