
science @ NASA

1
00:00:06,470 --> 00:00:05,269
the united nations braces for stormy

2
00:00:10,390 --> 00:00:06,480
space weather

3
00:00:12,950 --> 00:00:10,400
presented by science at nasa

4
00:00:15,030 --> 00:00:12,960
rewind to the late 1950s

5
00:00:17,590 --> 00:00:15,040
the soviet union had just launched the

6
00:00:19,750 --> 00:00:17,600
first artificial satellite sputnik

7
00:00:21,910 --> 00:00:19,760
the united states caught short was

8
00:00:23,670 --> 00:00:21,920
scrambling to catch up kick-starting a

9
00:00:24,790 --> 00:00:23,680
cold war space race that would last for

10
00:00:26,790 --> 00:00:24,800
decades

11
00:00:29,029 --> 00:00:26,800
space was up for grabs and it seemed

12
00:00:30,630 --> 00:00:29,039
like anything could happen

13
00:00:31,910 --> 00:00:30,640

into this void stepped the united

14
00:00:34,870 --> 00:00:31,920
nations

15
00:00:36,630 --> 00:00:34,880
in 1958 the general assembly recognizing

16
00:00:38,229 --> 00:00:36,640
the common interest of mankind in

17
00:00:40,470 --> 00:00:38,239
furthering the peaceful use of outer

18
00:00:42,310 --> 00:00:40,480
space and desiring to avoid the

19
00:00:44,709 --> 00:00:42,320
extension of national rivalries into

20
00:00:47,190 --> 00:00:44,719
this new field established the committee

21
00:00:49,190 --> 00:00:47,200
of the peaceful uses of outer space

22
00:00:50,549 --> 00:00:49,200
kopios became a forum for development of

23
00:00:52,790 --> 00:00:50,559
laws and treaties governing

24
00:00:54,630 --> 00:00:52,800
space-related activities setting the

25
00:00:56,830 --> 00:00:54,640
stage for international cooperation on

26
00:00:59,910 --> 00:00:56,840
problems that no one nation could handle

27
00:01:02,150 --> 00:00:59,920
alone as the years went by kopios

28
00:01:04,229 --> 00:01:02,160
membership ballooned from 18 to 74

29
00:01:06,870 --> 00:01:04,239
nations while items such as orbital

30
00:01:08,469 --> 00:01:06,880
debris near-earth asteroids and global

31
00:01:09,830 --> 00:01:08,479
navigation were added to the regular

32
00:01:11,510 --> 00:01:09,840
agenda

33
00:01:12,469 --> 00:01:11,520
at each meeting members confer about

34
00:01:13,990 --> 00:01:12,479
these issues

35
00:01:16,390 --> 00:01:14,000
which present some key challenge or

36
00:01:18,870 --> 00:01:16,400
peril to the whole planet

37
00:01:20,310 --> 00:01:18,880
this year a new item is on the agenda

38
00:01:22,230 --> 00:01:20,320

space weather

39
00:01:24,390 --> 00:01:22,240
this is a significant development says

40
00:01:27,510 --> 00:01:24,400
likaguhata corta of nasa headquarters in

41
00:01:29,670 --> 00:01:27,520
washington dc by adding space weather to

42
00:01:31,910 --> 00:01:29,680
the regular agenda of the copuos science

43
00:01:34,149 --> 00:01:31,920
and technology subcommittee the un is

44
00:01:36,069 --> 00:01:34,159
recognizing solar activity as a concern

45
00:01:38,469 --> 00:01:36,079
on par with orbital debris and close

46
00:01:40,069 --> 00:01:38,479
approaching asteroids

47
00:01:42,149 --> 00:01:40,079
space weather is the outer space

48
00:01:44,710 --> 00:01:42,159
equivalent of weather on earth

49
00:01:47,510 --> 00:01:44,720
instead of wind rain and snow however

50
00:01:50,230 --> 00:01:47,520
space has radiation storms solar wind

51
00:01:52,230 --> 00:01:50,240
flares and coronal mass ejections

52
00:01:53,910 --> 00:01:52,240
the source of space weather is the sun

53
00:01:56,149 --> 00:01:53,920
and although solar storms are launched

54
00:01:58,550 --> 00:01:56,159
93 million miles from earth they can

55
00:02:00,469 --> 00:01:58,560
make themselves felt on our planet

56
00:02:03,270 --> 00:02:00,479
strong solar storms can knock out power

57
00:02:05,109 --> 00:02:03,280
and disable satellites says guhata corta

58
00:02:06,709 --> 00:02:05,119
it's a global problem made worse by our

59
00:02:08,790 --> 00:02:06,719
increasing reliance on sensitive

60
00:02:10,710 --> 00:02:08,800
electronic technologies

61
00:02:12,470 --> 00:02:10,720
the potential economic impacts of space

62
00:02:14,949 --> 00:02:12,480
weather are significant

63
00:02:16,869 --> 00:02:14,959

for instance modern oil and gas drilling

64
00:02:19,750 --> 00:02:16,879
frequently involve directional drilling

65
00:02:21,430 --> 00:02:19,760
to tap deep oil and gas reservoirs

66
00:02:23,910 --> 00:02:21,440
this drilling technique depends on

67
00:02:25,910 --> 00:02:23,920
accurate positioning using gps

68
00:02:28,790 --> 00:02:25,920
drill heads could go awry however if the

69
00:02:30,470 --> 00:02:28,800
sun interferes with gps reception

70
00:02:32,309 --> 00:02:30,480
solar energetic particles at the

71
00:02:34,070 --> 00:02:32,319
magnetic poles can force the rerouting

72
00:02:35,910 --> 00:02:34,080
of international airline flights

73
00:02:37,350 --> 00:02:35,920
resulting in delays and increased fuel

74
00:02:39,190 --> 00:02:37,360
consumption

75
00:02:41,030 --> 00:02:39,200
currents generated by magnetic storms

76
00:02:43,589 --> 00:02:41,040
can damage transformers and increase

77
00:02:45,350 --> 00:02:43,599
corrosion in energy pipelines

78
00:02:47,030 --> 00:02:45,360
a key problem that the u.n can help

79
00:02:48,710 --> 00:02:47,040
solve is the gaps in storm coverage

80
00:02:50,949 --> 00:02:48,720
around our planet

81
00:02:52,710 --> 00:02:50,959
when a solar storm sweeps past earth

82
00:02:54,710 --> 00:02:52,720
waves of ionized particles ripple

83
00:02:56,630 --> 00:02:54,720
through earth's upper atmosphere and the

84
00:02:57,670 --> 00:02:56,640
whole planet's magnetic field begins to

85
00:02:59,190 --> 00:02:57,680
shake

86
00:03:01,350 --> 00:02:59,200
these are global phenomena says

87
00:03:03,910 --> 00:03:01,360
gujatakorta we need to be able to

88
00:03:05,830 --> 00:03:03,920

monitor them all around the world

89
00:03:07,990 --> 00:03:05,840
industrialized countries tend to have an

90
00:03:09,750 --> 00:03:08,000
abundance of monitoring stations

91
00:03:10,630 --> 00:03:09,760
developing countries are where the gaps

92
00:03:12,869 --> 00:03:10,640
are

93
00:03:14,869 --> 00:03:12,879
with assistance from the un researchers

94
00:03:16,149 --> 00:03:14,879
may be able to extend sensor networks

95
00:03:18,790 --> 00:03:16,159
into regions where it was once

96
00:03:21,430 --> 00:03:18,800
politically impossible space weather

97
00:03:23,270 --> 00:03:21,440
might play a role in earth's climate too

98
00:03:25,670 --> 00:03:23,280
for example the maunder minimum a

99
00:03:28,229 --> 00:03:25,680
70-year period almost devoid of sunspots

100
00:03:30,390 --> 00:03:28,239
in the late 17th to early 18th century

101
00:03:32,789 --> 00:03:30,400
coincided with very cold winters in the

102
00:03:34,710 --> 00:03:32,799
northern hemisphere researchers are

103
00:03:36,949 --> 00:03:34,720
increasingly convinced that variations

104
00:03:38,630 --> 00:03:36,959
in solar activity have regional effects

105
00:03:40,390 --> 00:03:38,640
on climate that pay no attention to

106
00:03:42,229 --> 00:03:40,400
national boundaries

107
00:03:44,390 --> 00:03:42,239
from now on space weather will be a

108
00:03:46,789 --> 00:03:44,400
matter of regular conversation among un

109
00:03:48,470 --> 00:03:46,799
diplomats and emergency planners

110
00:03:50,789 --> 00:03:48,480
this is important because while space

111
00:03:53,589 --> 00:03:50,799
weather is no longer up for grabs it is

112
00:03:55,190 --> 00:03:53,599
still true almost anything can happen

113
00:03:56,949 --> 00:03:55,200

for more news about space weather and