1
00:00:00,000 --> 00:00:25,300
I

2
00:00:29,980 --> 00:00:27,849
when America's first satellite explorer

3
00:00:31,390 --> 00:00:29,990
one launched more than three decades ago

4
00:00:33,790 --> 00:00:31,400
it discovered the Van Allen radiation

5
00:00:35,740 --> 00:00:33,800
belts it's around the earth and ever

6
00:00:37,630 --> 00:00:35,750
since radiation has caused more than a

7
00:00:40,540 --> 00:00:37,640
few problems for the satellites that

8
00:00:43,329 --> 00:00:40,550
have followed they fail from radiation

9
00:00:46,329 --> 00:00:43,339
as one of the primary players we have we

10
00:00:50,290 --> 00:00:46,339
have a lot of problems in having to go

11
00:00:52,479 --> 00:00:50,300
back in and reprogram spacecraft because

12
00:00:54,280 --> 00:00:52,489
of radiation hits now this spacecraft

13
00:00:56,890 --> 00:00:54,290

called the combined release and

14
00:00:59,439 --> 00:00:56,900
radiation effects satellite or cres will

15
00:01:01,840 --> 00:00:59,449
help remap the radiation belts and by

16
00:01:04,750 --> 00:01:01,850
using that we can determine what types

17
00:01:07,090 --> 00:01:04,760
of radiation protection need to be put

18
00:01:09,130 --> 00:01:07,100
on future spacecraft future spacecraft

19
00:01:11,050 --> 00:01:09,140
will also benefit from new solar power

20
00:01:13,330 --> 00:01:11,060
panels being tested aboard crest

21
00:01:15,399 --> 00:01:13,340
standard panels like these which will

22
00:01:17,469 --> 00:01:15,409
actually power the crest satellite could

23
00:01:19,990 --> 00:01:17,479
someday be replaced by panels like this

24
00:01:21,820 --> 00:01:20,000
which are doubly efficient kress will

25
00:01:24,219 --> 00:01:21,830
also light up the sky with a year-long

26
00:01:26,649 --> 00:01:24,229
series of experiments that will focus in

27
00:01:28,420 --> 00:01:26,659
on energy generated by solar storms

28
00:01:30,940 --> 00:01:28,430
energy that can disrupt radio

29
00:01:33,399 --> 00:01:30,950
transmissions and power supplies here on

30
00:01:35,230 --> 00:01:33,409
earth flying an egg-shaped orbit crests

31
00:01:37,630 --> 00:01:35,240
will release chemical tracers into both

32
00:01:39,489 --> 00:01:37,640
the ionosphere and the magnetosphere it

33
00:01:41,440 --> 00:01:39,499
will be like painting magnetic field

34
00:01:43,569 --> 00:01:41,450
lines in space so that they're visible

35
00:01:45,669 --> 00:01:43,579
from the ground these will be closely

36
00:01:47,889 --> 00:01:45,679
examined using ground-based telescopes

37
00:01:50,499 --> 00:01:47,899
and special aircraft and one of the aims

38
00:01:52,840 --> 00:01:50,509

of crests is to do specific experiments

39
00:01:55,239 --> 00:01:52,850
in the space surrounding earth to study

40
00:01:58,779 --> 00:01:55,249
how these disturbances propagate how

41
00:02:03,309 --> 00:01:58,789
they grow and decay with an idea toward

42
00:02:05,050 --> 00:02:03,319
being able to predict in the future when

43
00:02:07,899 --> 00:02:05,060
these disturbances will occur and how

44
00:02:10,300 --> 00:02:07,909
large they will be press is a joint NASA

45
00:02:11,860 --> 00:02:10,310
and Air Force project that's managed for

46
00:02:14,500 --> 00:02:11,870
NASA by the Marshall Space Flight Center

47
00:02:16,809 --> 00:02:14,510
in Huntsville Alabama an atlas centaur

48
00:02:19,030 --> 00:02:16,819
rocket will launch cress with its 20

49
00:02:21,940 --> 00:02:19,040
scientific instruments and 24 canisters

50
00:02:24,210 --> 00:02:21,950
filled with chemical tracers just as its

51
00:02:27,250 --> 00:02:24,220
ancestor Explorer one did many years ago

52
00:02:29,260 --> 00:02:27,260
crest will blaze a new trail that's sure

53
00:02:31,720 --> 00:02:29,270
to help clear the way for space flights